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**DEPRECIATION, RESERVES, AND
RESERVE FUNDS.**

“*The ACCOUNTANTS' LIBRARY.*”—*Vol. XXVI.*

Depreciation, Reserves, and Reserve Funds

BY

LAWRENCE R. DICKSEE, M.COM., F.C.A.

(Author of “Auditing,” “Advanced Accounting,” “Bookkeeping for Accountant Students,” &c.)

formerly Sir Ernest Cassel Professor of Accountancy and Business Methods in the University of London.

FIFTH EDITION

LONDON:
GEE & Co. (PUBLISHERS) LTD., KIRBY STREET
1926

PRINTED IN GREAT BRITAIN.

EDITOR'S PREFACE.

THE object of the series of handbooks published under the heading of THE ACCOUNTANTS' LIBRARY is to provide, at a reasonable price, detailed information as to the most approved methods of keeping accounts in relation to all the leading classes of industry whose books call for more or less specialised treatment. No such series has hitherto been attempted ; but there exist, of course, numerous separate works dealing with the accounts of one particular class of undertaking. These separate works are, however, for the most part either too expensive, or too superficial to answer the purpose that is particularly aimed at by THE ACCOUNTANTS' LIBRARY, which is intended to supply the student with that specialised information which he may require, while at the same time affording to the trader, banker, or manufacturer who is not in a position to secure the fullest information for his purpose, knowledge which can hardly fail to be of the very greatest assistance to him in the correct keeping of his accounts, upon a system specially adapted to his requirements, and therefore involving a minimum expenditure of labour. It is expected that the series will also be found of material assistance to bookkeepers of all classes.

Without aiming at giving an exhaustive account of the manner in which each separate business is conducted, the technical points in connection with each industry will receive as much attention as is necessary in order fully to elucidate the system of accounts advocated, while each volume will be

the work of one who has made that particular class of accounts more or less a speciality. It is obvious, however, that to enable the necessary ground to be covered in the space available, it is incumbent to assume upon the part of the reader a certain knowledge of general bookkeeping. The extent of the knowledge assumed will vary according to the nature of the class of accounts considered. For example, in the volume on "Bank Accounts," a thorough acquaintance with ordinary double-entry bookkeeping is not unnaturally assumed; but in the case of "Auctioneers' Accounts," and other similar volumes, such explanations are included as will enable the ordinarily intelligent reader fully to grasp the methods described even although his knowledge of bookkeeping may be of an elementary description. These explanations are, doubtless, superfluous as far as accountants are concerned, but are necessary to make the volumes of value to the majority of those specially engaged in these particular industries.

To subscribers for the whole series it may be added that it forms a most valuable and practically complete library, dealing, at the hands of specialists, with practically every class of accounts, and illustrating the application of the theory of double-entry as described in general works on bookkeeping.

6, KIRBY STREET,
LONDON, E.C. 1.
22 June, 1926.

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INTRODUCTION.

IN dealing with the subject that forms the title of this volume the Author is fully aware that he is discussing some of the most vexed questions in connection with matters relating to accounts. Upon many of the various matters considered, widely divergent views have been expressed by authorities *primâ facie* entitled to almost equal acceptation, and accordingly it is with considerable diffidence that he approaches the task of discussing these matters more or less fully, and endeavouring to put forward for the acceptance of the reader certain definite expressions of opinion. It is thought, however, that—here, as elsewhere—much of the misconception that is rife has arisen either through the confusion of legitimate arguments with the statements of more or less “special pleaders,” or through the confusion of what are legitimately matters of opinion (although, of course, in this connection of necessity only expert opinions can be considered) with matters of scientific fact. The endeavour has accordingly been made to clear the ground, so far as possible, by separating matters of opinion from matters of fact, and by pointing to the *consequences* which must inevitably result from the following of any given line of action in connection with the provision for Depreciation, Reserves, and Reserve Funds. By this means it is hoped that an impartial—and, as far as may be, an unbiased—statement may be put forward which will enable all who care to go fully into the subject to determine the principles upon which it is desirable that these various provisions should be made in each separate case. When all has been said, the subject must, it is thought, at all

times remain—so far at least as its practical application is concerned—a matter of opinion ; but no useful judgment can be exercised with regard to matters of opinion until the mind is clear as to the results that will ensue from the adoption of any given line of procedure, and accordingly it is to this last-named point that the following pages have been especially directed.

It may be added that, although the professional accountant should be well versed in the various methods of providing for depreciation, it is no part of his duties to usurp the functions of experts competent to estimate the values of different classes of assets and their probable working lives.

L. R. D.

22nd JUNE, 1926.

Depreciation, Reserves, and Reserve Funds.

CHAPTER I.

THE IMPORTANCE OF DEPRECIATION.

THE term "Depreciation" is one that is well known to all who have the least familiarity with accounts, and its meaning is doubtless very well understood by all who have given the subject of accounting any very serious consideration ; but, at the same time, it must be admitted that the expression is one that for general purposes is extremely loosely employed, meaning in the mouths of different persons wholly different things, and often varying in its meaning according to the point that the particular speaker wishes to make at the moment. The fact that adequate or inadequate provision for Depreciation often makes all the difference between a satisfactory and an unsatisfactory apparent financial result has at all times tended to the abuse of the term in question, and it would probably not be going too far to say that this abuse has in many notorious cases been deliberate, rather than unconscious. The general public, who do not pretend to be—and certainly are not—skilled in the interpretation of accounts, have yet a sufficiently

workable elementary knowledge of the subject to know that no true profits can be shown until after Revenue has been charged with a sum sufficient to cover such Depreciation as has actually *occurred* during the period under review. Consequently, those who are interested in inflating profits, or in showing apparent profits where in point of fact they do not exist, generally recognise the futility of attempting to argue that provision for Depreciation is in any particular case unnecessary. Their line of argument (if they be wise in their generation) lies rather in the direction of attempting to persuade their hearers that, under the peculiar circumstances there obtaining, a *direct* charge for Depreciation is unnecessary, because such provision as might under normal circumstance be proper in this connection is in that particular instance provided by other means. The records of the past show that, in this direction (as in many others), it is a comparatively simple matter for the special pleader of even average ability to confuse the ordinary plain man of business as to the real issue, and the result is from time to time apparent when hopeless insolvency follows upon a period that was supposed to be marked by unbroken prosperity. The frequency with which this sequence of events has been observed suggests, it is thought, at least a *prima facie* case for inquiry into the soundness of the methods that have hitherto been adopted in connection with provision for Depreciation ; but even more does it suggest the need for approaching the subject with more single-mindedness of purpose, and with a stern determination to eliminate from the inquiry all irrelevant or immaterial points.

The particular issue that has to be faced in the case of every business concern is that—by whatever name it be known—provision must, in some form or another, be made for the maintenance of its fixed assets, if it be desired that the business shall retain its permanent character ; and if this end is to be assured, it is further necessary that the fair

and reasonable charges in respect of such provision should be debited against each year's profits, and not postponed until the last possible moment. By no other means is it possible to insure a reasonably stable income, revenue, or profit, that may properly be divided, or otherwise taken out of the business, without detriment to its continued permanence.

So far the subject of Depreciation has been referred to solely in connection with fixed assets, and for the purpose of reducing the inquiry comprised in the present volume to reasonable dimensions it is proposed to deal with these assets alone, for there would appear to be no serious difference of opinion among reasonably prudent business men as to the absolute necessity of at all times providing for all known Depreciation of floating assets. The proper provision for the Depreciation of floating assets may thus safely be left out of account, as being practically admitted upon all hands; but to avoid any possible misunderstanding with regard to the matter, it may be stated, before finally leaving this point, that all that may be urged with regard to the necessity of making due provision for Depreciation of fixed assets applies of necessity *à fortiori* to floating assets.

Fixed assets may in general terms be divided into (1) Lands and Buildings occupied for the purposes of trade. (2) Plant and Machinery worked in the course of trade. (3) Goodwill. The exact nature of such assets will vary somewhat according to the business carried on, but the above classification will be found convenient both for theoretical and practical purposes in connection with the subject of Depreciation.

To some extent the distinction mentioned above corresponds with the distinction drawn by lawyers between realty and personality, or between immovable and movable assets. This correspondence is, however, purely accidental, for, if the subject of Depreciation is to be considered on its merits, and upon them alone, it becomes necessary to divide assets according to the nature of the circumstances under which Depreciation

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arises, rather than in accordance with their strictly legal significance.

It is proposed, in the first place, to deal with these two classes of assets, and the necessary provision for their Depreciation, separately, and to refer at a later stage to those general principles that apply to all fixed assets in connection with the important question of Depreciation.

CHAPTER II.

METHODS OF PROVIDING FOR DEPRECIATION.

THE importance of making due provision for Depreciation being conceded, the next question that naturally arises is as to the precise method to be adopted to achieve that end. The essential point is that Revenue should be charged with a proper sum to cover the deterioration in the value of wasting assets, and that the apportionment of this sum as between one year and another should be upon equitable lines. This, of course, involves a debit to a nominal account, and a corresponding credit to some other account. The credit may be either to the account relating to the asset in question, or to a Reserve (or Suspense) Account. If the former, the value of the asset is gradually written down in the books to correspond with the deterioration in intrinsic value ; if the latter, the asset account remains unaltered, except in so far as it may be increased from time to time by further additions that may properly be capitalised. The last-named is the method generally employed in connection with the Double Account System (*vide* Chapter XI) ; but it is also convenient, in cases where it is desired, to be able at all times readily to perceive the total expenditure up to date upon the assets in question, even when the accounts are kept upon the Single Account System. In framing a Balance Sheet upon the Single Account System, however, it is preferable that a Reserve for Depreciation should be deducted from the amount of the asset, rather than stated as a liability upon the opposite side of the Balance Sheet.

There are four methods by which the charge against Revenue to cover Depreciation may be apportioned over the various years constituting the life of the asset, viz. :—

- ✓ (1) An equal proportion of the cost may be written off each year (sometimes called the "Straight-Line Method").
- ✓ (2) The asset may be written down from year to year by deducting Depreciation at a fixed rate per cent. upon the balance standing to the debit of the account at the commencement of the year. Under this method the charges against Revenue become gradually less as time goes on, hence the method is often called the "Reducing Instalment (or Fixed Percentage) Method."
- ✓ (3) By writing off to Revenue each year an equal sum, sufficient at the expiration of the life of the asset to reduce the asset to zero (or its residual value), after debiting the asset and crediting Revenue each year with interest, at an agreed rate, upon the amount for the time being sunk in the asset in question. This method is called the "Annuity System," and as the gross charge in respect of Depreciation is constant, whereas the credits to Revenue in respect of interest diminish as the asset is written down, the net effect of this method is to charge an increasing sum to Revenue as years go on. The justification for so charging an increasing sum to Revenue is that the Depreciation instalments, remaining in the business, increase the Working Capital of the undertaking. The yearly increase in the instalments represents the amount of interest that might have been earned on the previous instalments during the period under review, if those instalments had been taken out of the business and invested at the contemplated rate per cent. *Pro forma* examples of this method will be found on page 12.
- (4) By revaluing the assets from time to time and treating any diminution in value (after allowing for additions) as the realised Depreciation for the year. Under this method, for

obvious reasons, the charges against Revenue in successive years will be very unequal, as the gradual reduction in the market value of most articles has but little correspondence with the true Depreciation, as measured by the amount of use that has been had out of the asset during the period in question.

Any of the above-named methods of providing for Depreciation may be employed, either with or without accumulating a corresponding sum of money outside the business, available at short notice to repair the ravages caused by Depreciation. Such accumulations outside the business are commonly—but somewhat inaccurately—known as “Sinking Funds” (*vide* Chapter X). It may be pointed out that, if such accumulations can be invested so as to earn the same rate of interest as that employed under the third system mentioned above, the ultimate result will be exactly the same as though the third system were adopted. The third system is indeed an attempt to correct the inequities of the first system without at the same time creating a Sinking Fund.

In the following chapters the best method to adopt in each separate case will be found fully discussed in connection with all the more ordinary classes of wasting assets, and it is therefore unnecessary to deal with the matter at length at the present time. It may be mentioned, however, that whereas the first method (combined with a corresponding accumulation of assets) is doubtless theoretically the most accurate, unless a special Reserve be created to equalise the charges against different years in respect of repairs and small renewals, it will generally be found that these charges tell unduly heavily against the latter years of the asset's life. To compensate for this the second method is often employed, especially in connection with those assets upon which considerable expenses in respect of repairs and small renewals may usefully be incurred before they are finally laid aside as valueless.

Yet other methods of apportioning the charge against the

profits of successive years are occasionally employed, in order to correct inequalities which are inevitable under all of the preceding systems. Generally one or other of these four will produce sufficiently equitable results to answer all practical requirements ; but occasionally the Depreciation in connection with some special machine, irregularly used, may amount to a sufficient sum to call for more particular treatment. The charge for Depreciation may, for some purposes, be likened to the amount charged by one department of a business to another department for the use, or hire, of the asset in question ; upon this basis, if the use be very irregular, an apportionment of the charge upon the yearly basis might quite conceivably be inaccurate. As a rule, the inaccuracy will be so inconsiderable as to be negligible ; but if the Depreciation reach important figures, as contrasted with the other items in the Revenue Account, more accurate treatment may be essential. In such cases a better basis for apportionment may be the number of hours that the machine in question is worked, or the number of articles that the machine has turned out during the period under review. Under any proper system of accounts there ought not to be any difficulty in arriving at either of these data, so that the apportionment may readily be made upon these lines, if thought desirable. Unless, however, the more ordinary methods of providing for Depreciation give clearly inaccurate results, it would not be desirable to have recourse to the time or quantity basis of apportionment, on account of the difficulty of determining the working life of the asset under these circumstances. Thus the number of hours that a machine can be run efficiently is not a constant quantity that can be estimated in advance, but depends greatly upon many other factors which will be found duly considered in Chapter V ; and in the same way one cannot determine in advance the number of articles that any machine can produce during its working life, if the conditions under which that machine works are known to be very irregular.

That the effect of the various methods described above may readily be compared, *pro forma* accounts are appended to this chapter, showing how an asset may be reduced to 10 per cent. of its original cost in twelve years under each method. On page 63 will be found a table showing the amount to be invested annually, and accumulated at compound interest, in order to cover a corresponding deterioration in value.

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First Method—

TABLE SHOWING DEPRECIATION AT 7½% ON COST.

Dr.	MACHINERY ACCOUNT.	Cr.
1926 Jan. 1	To Cash £ 1,000 0 0	1926 Dec. 31 By Depreciation .. . " Balance carried down £ 925 0 0
	£ 1,000 0 0	£ 1,000 0 0
1927 Jan. 1	To Balance brought down 925 0 0	1927 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 925 0 0	850 0 0
1928 Jan. 1	To Balance brought down 850 0 0	1928 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 850 0 0	775 0 0
1929 Jan. 1	To Balance brought down 775 0 0	1929 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 775 0 0	700 0 0
1930 Jan. 1	To Balance brought down 700 0 0	1930 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 700 0 0	625 0 0
1931 Jan. 1	To Balance brought down 625 0 0	1931 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 625 0 0	550 0 0
1932 Jan. 1	To Balance brought down 550 0 0	1932 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 550 0 0	475 0 0
1933 Jan. 1	To Balance brought down 475 0 0	1933 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 475 0 0	400 0 0
1934 Jan. 1	To Balance brought down 400 0 0	1934 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 400 0 0	325 0 0
1935 Jan. 1	To Balance brought down 325 0 0	1935 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 325 0 0	250 0 0
1936 Jan. 1	To Balance brought down 250 0 0	1936 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 250 0 0	175 0 0
1937 Jan. 1	To Balance brought down 175 0 0	1937 Dec. 31 By Depreciation .. . " Balance carried down 75 0 0
	£ 175 0 0	100 0 0
1938 Jan. 1	To Balance brought down 100 0 0	

Second Method—

TABLE SHOWING DEPRECIATION AT 17½% ON THE REDUCING BALANCE.
Dr. MACHINERY ACCOUNT. Cr.

1926 Jan. 1	To Cash	£ s d 1,000 0 0	1926 Dec. 31	By Depreciation .. ,, Balance carried down	£ s d 175 0 0 825 0 0
		£ 1,000 0 0			£ 1,000 0 0
1927 Jan. 1	To Balance brought down	825 0 0	1927 Dec. 31	By Depreciation .. ,, Balance carried down	144 7 6 680 12 6
		£ 825 0 0			£ 825 0 0
1928 Jan. 1	To Balance brought down	680 12 6	1928 Dec. 31	By Depreciation .. ,, Balance carried down	119 2 2 561 10 4
		£ 680 12 6			£ 680 12 6
1929 Jan. 1	To Balance brought down	561 10 4	1929 Dec. 31	By Depreciation .. ,, Balance carried down	98 5 3 463 5 1
		£ 561 10 4			£ 561 10 4
1930 Jan. 1	To Balance brought down	463 5 1	1930 Dec. 31	By Depreciation .. ,, Balance carried down	81 1 5 382 3 8
		£ 463 5 1			£ 463 5 1
1931 Jan. 1	To Balance brought down	382 3 8	1931 Dec. 31	By Depreciation .. ,, Balance carried down	66 17 8 315 6 0
		£ 382 3 8			£ 382 3 8
1932 Jan. 1	To Balance brought down	315 6 0	1932 Dec. 31	By Depreciation .. ,, Balance carried down	55 3 7 260 2 5
		£ 315 6 0			£ 315 6 0
1933 Jan. 1	To Balance brought down	260 2 5	1933 Dec. 31	By Depreciation .. ,, Balance carried down	45 10 5 214 12 0
		£ 260 2 5			£ 260 2 5
1934 Jan. 1	To Balance brought down	214 12 0	1934 Dec. 31	By Depreciation .. ,, Balance carried down	37 11 1 177 0 11
		£ 214 12 0			£ 214 12 0
1935 Jan. 1	To Balance brought down	177 0 11	1935 Dec. 31	By Depreciation .. ,, Balance carried down	30 19 8 146 1 3
		£ 177 0 11			£ 177 0 11
1936 Jan. 1	To Balance brought down	146 1 3	1936 Dec. 31	By Depreciation .. ,, Balance carried down	25 11 3 120 10 0
		£ 146 1 3			£ 146 1 3
1937 Jan. 1	To Balance brought down	120 10 0	1937 Dec. 31	By Depreciation .. ,, Balance carried down	20 10 0 100 0 0
		£ 120 10 0			£ 120 10 0
1938 Jan. 1	To Balance brought down	100 0 0			

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Third Method—

DEPRECIATION OF MACHINERY BY ANNUITY SYSTEM AT 6%, SO AS TO LEAVE A BALANCE OF £100 AT THE END OF 12 YEARS.

Dr.	MACHINERY ACCOUNT.	Cy.
1926 Jan. 1 Dec. 31	To Cash " Interest £ 1,000 0 0 60 0 0 £ 1,060 0 0	1926 Dec. 31 " By Depreciation .. " Balance carried down .. £ 1,060 0 0
1927 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 946 13 1 56 16 0 £ 1,003 9 1	1927 Dec. 31 " By Depreciation .. " Balance carried down .. £ 1,003 9 1
1928 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 890 2 2 53 8 2 £ 943 10 4	1928 Dec. 31 " By Depreciation .. " Balance carried down .. £ 943 10 4
1929 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 830 3 5 49 16 2 £ 879 19 7	1929 Dec. 31 " By Depreciation .. " Balance carried down .. £ 879 19 7
1930 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 766 12 8 46 0 0 £ 812 12 8	1930 Dec. 31 " By Depreciation .. " Balance carried down .. £ 812 12 8
1931 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 699 5 9 41 19 2 £ 741 4 11	1931 Dec. 31 " By Depreciation .. " Balance carried down .. £ 741 4 11
1932 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 627 18 0 37 13 6 £ 665 11 6	1932 Dec. 31 " By Depreciation .. " Balance carried down .. £ 665 11 6
1933 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 552 4 7 33 2 8 £ 585 7 3	1933 Dec. 31 " By Depreciation .. " Balance carried down .. £ 585 7 3
1934 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 472 0 4 28 6 5 £ 500 6 9	1934 Dec. 31 " By Depreciation .. " Balance carried down .. £ 500 6 9
1935 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 386 19 10 23 4 5 £ 410 4 3	1935 Dec. 31 " By Depreciation .. " Balance carried down .. £ 410 4 3
1936 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 296 17 4 17 8 3 £ 314 5 7	1936 Dec. 31 " By Depreciation .. " Balance carried down .. £ 314 5 7
1937 Jan. 1 Dec. 31	To Balance brought down .. " Interest £ 200 18 8 12 8 3 £ 213 6 11	1937 Dec. 31 " By Depreciation .. " Balance carried down .. £ 213 6 11
1938 Jan. 1	To Balance brought down .. " Interest £ 100 0 0	

CHAPTER III.

DEPRECIATION OF FREEHOLDS.

DEALING first of all with Depreciation as applied to Lands and Buildings, it may be pointed out that all such assets are, in the first place, capable of division into two classes—viz. Freeholds and Leaseholds.

Taking first of all FREEHOLDS, it may be pointed out that although Depreciation is here less evident perhaps than under any other circumstances, yet even here it exists as a factor which cannot well be ignored, if it be desired to observe a reasonably far-seeing policy. Freehold buildings, like all other buildings, depreciate, in the sense that they from time to time require money to be expended in repairing them and keeping them up to date, so that they may continue to serve the purposes for which they have been acquired and are being utilised in the business. If these premises have been fairly well constructed, for a considerable time at least the charges coming under this heading may perhaps be covered by ordinary repairs; but a more extended view of the requirements of the situation will show that, however substantially such buildings may have been constructed, the time will of necessity come eventually when mere repairs are no longer sufficient, and actual rebuilding operations have to be embarked upon. It may, however, be pointed out that, long before the absolute necessity for rebuilding arises, such deterioration in the fabric of the building will in point of fact have occurred as materially to reduce its

saleable value, apart altogether from such fluctuations in value as may arise from alterations in the value of the land, or the competition of supply and demand for buildings of that particular class in that particular locality. Eliminating all such questions of fluctuation in value, the time must inevitably come when every building requires to be rebuilt, or virtually rebuilt, and long before that time arrives such a deterioration in its fabric must have been going on as to reduce *pro tanto* the intrinsic value of the building itself. These are factors which, because they necessarily and inevitably occur, must be foreseen and provided for as business charges by those occupying such building for the purposes of their business. If the business is to be continued indefinitely, it is clear that such charges will at some future date inevitably mature, and have to be incurred, in order to enable the business to be carried on. It therefore follows that, if from year to year the business is to be carried on upon such a basis as to provide for all reasonable contingencies, and to charge each year with its due proportion of all charges that can reasonably be foreseen, the necessary expenses of partially or completely rebuilding must be estimated in advance, and each year charged with its due proportion thereof. If this point be conceded, it matters not at all whether the provision in question be called "Depreciation of Buildings" or "Rebuilding Fund," or by any other similar name. The essential point is that, recognising the fact that at the expiration of a certain number of years certain expenditure will have to be incurred, it becomes not merely prudent, but also proper, to charge against each year's trading its due share of the cost of this expenditure.

The exact means of making this provision are to some extent optional, and the various methods by which such provision may be reasonably made will be considered in due course under the heading of Leaseholds. It is, however, purely for purposes of convenience that the method of making due provision for Depreciation is thus postponed. It cannot

be pointed out too clearly that the necessity arises even in the case of Freeholds, because certain expenditure will eventually have to be incurred, and, further, because such expenditure is not properly chargeable against the profits of the single year when the time arrives that the money can be spent to the best advantage, but is rather in fairness divisible among all the years that have had the benefit of using the premises in question for the purposes of the business carried on.

So far the question of Depreciation, as applied to Freehold Buildings, has been dealt with solely from the point of view of the principle involved. It may be stated at the outset that considerable difficulty will in all probability be experienced in foreseeing the ultimate duration, or the "term of life," of any given building, and accordingly the actual provision necessary to be charged against each year (so that each year's profits may bear its due share of the total cost) is a matter of considerable difficulty. The problem is further complicated by the fact that not only is the term of the life of the buildings uncertain, but the cost of renewing them at the expiration of that term is also a matter incapable of exact determination any considerable number of years in advance. At the time of writing, the general tendency in this country would appear to be for the cost of building to increase, and if this tendency be at all likely to prove permanent a more liberal provision for the expenditure that will eventually be necessary to replace the wear and tear of existing fabrics should be made. Experience has, however, shown that the cost of building is a somewhat fluctuating factor, which cannot at any time be regarded with absolute certainty. For practical purposes, therefore, it is clear that the views of well-informed business men must be taken on the point before any definite figure can be arrived at which will provide a reasonable provision for such expenditure as it may be found will have to be incurred at some future date.

This introduction of matters of purely speculative opinion into the problem undoubtedly tends to complicate it, and

has in all probability tended in no small degree to foster the misconception that *all* provision for Depreciation is an optional matter, rather than a matter of stern necessity. It is hoped, however, that in the course of the present work it will be made sufficiently clear that whatever charges may ultimately be necessary in order to renew existing assets are properly charges to be debited against Revenue *during the period in which such assets are used*. Any difficulty that may be experienced in determining in advance what the proper charge against each year's profits should be is a difficulty experienced in applying practically the principles here laid down, but in no sense does it invalidate those principles themselves.

In the case of Freehold Lands, it might reasonably be said that no question of Depreciation arose, if in point of fact one ever experienced the case of Lands being owned for purposes of business, upon which no structure of any kind had been erected for the purpose of adding to their business value. As a matter of fact, however, some such structures—if only in the nature of fencing and the like—always exist, and these may for present purposes be regarded as “Buildings,” although naturally of a far less permanent type than such Buildings as are ordinarily occupied for business purposes. Freehold Land itself does not depreciate in value, although it may greatly fluctuate from causes which may properly be left out of account in determining the divisible profits derived from the operations of each year's trading; but in practice, as has already been stated, Freehold Land is of no use for ordinary business purposes without some sort of structure erected thereon, and in connection with that structure—whatever its nature may be—Depreciation, at a more or less rapid rate, must inevitably arise as a practical factor. In accounts the best plan would undoubtedly appear to be to separate the value of the Freehold Land from the value of all Buildings, or other erections, thereon, so that due provision may readily be made for the latter, while

leaving the former outstanding at its original cost price. This distinction between Freehold Lands and Buildings erected thereon may—and frequently will—necessitate the splitting up of the cost price of the two combined, which at the best can only be regarded as somewhat artificial. It ought not, however, to be a difficult matter to apportion the cost as between the Land itself and the Buildings erected thereon, and it is recommended that such an apportionment be made, so that the adequacy (or otherwise) of the provision made for the Depreciation of the latter may at all times be clear.

CHAPTER IV.

DEPRECIATION OF LEASEHOLDS.

IN the case of Leasehold Properties, the necessity for Depreciation must, it is thought, be even more obvious than in the case of Freeholds. With a Leasehold, even if there be a considerable unexpired term of tenure, it is clear that the time will eventually arrive when the Land and Buildings, and all Chattels " attached " to the land, must pass from the present lessee to the owner of the Freehold. It is thus clear that, in this case at least, the ownership of the Land, Buildings, and all Chattels attached thereto is of a non-permanent character. If the Lease be of long duration,* a question may easily arise as to whether the Buildings, &c., attached to the Land will last even so long as the Lease itself, and in such cases it may even be necessary to provide for their renewal at an earlier date; but in all normal cases, on the expiration of the Lease the property has to be handed over, along with all that may be " attached to the land " at that time, and as a rule the terms of the Lease will be such that any property then attached to the land, and delivered over to the freeholder with the land, must be up to a certain standard of repair, which may even involve upon the lessee some expense in addition to what would have been necessary to enable him to keep the property in a reasonably serviceable condition, such as would enable him to utilise it to the best advantage for the purposes of his own business. However that may be—and in this connection the terms of the

* Exceptionally, Leases are granted for 999 years. For purposes of Depreciation such Leases may be regarded as being practically equivalent to a tenancy in perpetuity, and treated as such.

Lease are but a matter of detail, not affecting the general principle involved—the problem that has to be faced is that whereas a certain amount of money has been sunk to begin with in the purchase of a Lease, and whereas during the continuance of that Lease certain money will have to be expended in maintaining the premises in a state suitable for the purposes of the lessee, and a further sum possibly in placing them in such a state of repair as will be acceptable to the lessor on the surrender of the Lease, the *whole* of such expenditure as may be thus incurred during the term of the Lease is in the nature of a payment on which the lessee can only look for a return during the continuance of the Lease itself. In so far, therefore, as it may be permissible for him to capitalise such payments at all, it is clear that they can only be capitalised temporarily, during the continuance of the Lease, and that at its expiration nothing ought to remain in the books as capital outlay in respect thereof. Properly speaking, all expenditure incurred under this heading should be regarded as payments made more or less in advance, for the *use* of premises for business purposes—that is to say, payments in advance for Rent.

That the subject may be considered upon a sound basis it is perhaps best to divide all expenditure that may occur in connection with Leasehold Properties under three headings :—

(a) The initial payment (or Premium) on the obtaining of the Lease in question ;

(b) Repairs to Premises during the continuance of the Lease, including such expenditure as may be necessary at the expiration of the Lease to enable the Premises to be surrendered in a condition acceptable to the landlord under the terms of the Lease ;

(c) Expenditure incurred on Plant, Machinery, &c., which, being “attached to the Land,” passes to the freeholder at the expiration of the Lease.

With regard to (a), it is clear that, but for the disturbing influence of the contingencies occurring under paragraphs (b) and (c), the Premium that would under normal circumstances be paid by the lessee to the lessor on the signing of a Lease would be the capitalised value of an annuity during the continuance of such Lease, representing the difference between the annual value of the premises conveyed and the rent payable under the terms of the Lease. That is to say, if a man would be content to pay, say, £100 per annum for premises on an annual tenure, he will be prepared to pay for a 20 years' lease of those premises (subject to a ground rent of £20 per annum) the capitalised value of an annuity of £80 per annum for 20 years. In arriving at the present value of this annuity he would take into account what he considered to be the proper rate of interest under the circumstances, and of course such outside circumstances as the advantage to himself of security of tenure for the next 20 years, or *per contra* a risk of being saddled for 20 years with property that possibly he might not require for so long. He would also take into account the probable risk of an alteration in the annual value of the premises—whether upwards or downwards—during the next 20 years, and the requirements of the lessor as to the state of repair in which the premises are to be left at the expiration of the term. But, subject to allowance for all these contingencies, the Premium that he would be prepared to pay for the Lease would be the capitalised value of an annuity of £80 per annum, at, say, 5 per cent. or 6 per cent. compound interest. With comparatively short leases, say, under 30 years, the rate of interest would probably be not less than 6 per cent. ; with longer Leases the rate might be 5 per cent., or even lower, according to circumstances.

This being the position of affairs, it is clear that, not merely in theory but also in actual practice, the Premium paid by a lessee on the execution of a Lease is really not in the nature of a permanent investment of Capital, but in the nature of

a payment in advance in respect of Rent ; that is to say, it is a Revenue payment which, although not properly chargeable in full against the profits of the current period, must yet be charged against Revenue during the period which (as a whole) receives the benefit of the expenditure in question. The proper way so to apportion the payment over the term of years comprised by the Lease is to regard the Premium as being the capitalised value of the Rent saved, to charge each year's Revenue with the rent so saved, and to credit each year's Revenue with the interest earned on the Capital invested, as shown in the following example :—

Dr.

LEASE ACCOUNT.

Cr.

1926		£ s d	1926		£ s d
Jan. 1	To Cash	1,000 0 0	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	60 0 0		," Balance carried down	880 17 4
		£ 1,060 0 0			£ 1,060 0 0
1927			1927		
Jan. 1	To Balance brought down	880 17 4	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	52 17 0		," Balance carried down	754 11 8
		£ 933 14 4			£ 933 14 4
1928			1928		
Jan. 1	To Balance brought down	754 11 8	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	45 5 6		," Balance carried down	620 14 6
		£ 799 17 2			£ 799 17 2
1929			1929		
Jan. 1	To Balance brought down	620 14 6	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	37 4 11		," Balance carried down	478 16 9
		£ 657 19 5			£ 657 19 5
1930			1930		
Jan. 1	To Balance brought down	428 16 9	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	28 14 6		," Balance carried down	328 8 7
		£ 507 11 3			£ 507 11 3
1931			1931		
Jan. 1	To Balance brought down	328 8 7	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	19 14 0		," Balance carried down	168 19 11
		£ 348 2 7			£ 348 2 7
1932			1932		
Jan. 1	To Balance brought down	168 19 11	Dec. 31	By Depreciation ..	179 2 8
Dec. 31	," Interest	10 2 9		," Balance carried down	..
		£ 179 2 8			£ 179 2 8

When, however, the Lease is of comparatively short duration, the factor of interest is often disregarded, as not very materially altering the figures, and the aggregate expenditure written off during the currency of the Lease by equal instalments. The effect of this mode of treatment, as contrasted with the preceding, is clearly shown by the following table. It should be added that in the case of long Leases the discrepancy between the two methods would be very materially increased, *pro tanto* according to the length of the Lease.

Year	Net Charge to Revenue under Annuity System			Net Charge to Revenue under Equal Instalments System		
	£	s	d	£	s	d
1926	119	2	8	142	17	1
1927	126	5	8	142	17	1
1928	133	17	2	142	17	2
1929	141	17	9	142	17	2
1930	150	8	2	142	17	2
1931	159	8	8	142	17	2
1932	168	19	11	142	17	2
	£1,000	0	0	£1,000	0	0

With regard to the provision for Depreciation of the Building, it is thought that this can best be dealt with upon an independent basis. If the Lease is so short that the necessary expenditure to maintain the fabric of the building is not in any one year likely to be a serious item as compared with the expenditure of the undertaking as a whole, it will be sufficient for practical purposes to charge each year with such expenditure as may arise as, and when, it occurs. If the anticipated scale of expenditure be slightly more than this, the better plan would be to arrive (by the best possible means) in advance at an aggregate figure of cost that is likely to be incurred under this heading during the term of the

Lease, and to charge each year with an equal fraction of such cost. If, however, the expenditure under this heading during the term of the Lease is likely to be comparatively trifling, but it is anticipated that at the expiration of the lease heavy expenditure will be necessary to replace the fabric in its original condition (or otherwise to meet the cost of such dilapidations that may legally be claimed by the landlord) then perhaps the best means of providing for the expenditure that will have to be incurred is to add to the normal charge for depreciation in each year such a sum as, if invested at compound interest, would, at the end of the Lease, amount to the estimated cost of dilapidations.

For example, taking the figures already given on page 22, if it be estimated that at the expiration of the Lease the cost of dilapidations will amount to £200, the total amount that has to be written off during the term of the lease will be not £1,000, but £1,200, and the accounts will then appear in the books as follows :—

Dr.

LEASE ACCOUNT.

Cr.

1926		£ s d	1926		£ s d
Jan. 1	To Cash	1,000 0 0	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	880 17 4
"	,, Interest	60 0 0			
		£ 1,083 16 7			£ 1,083 16 7
1927			1927		
Jan. 1	To Balance brought down	880 17 4	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	754 11 8
"	,, Interest	52 17 0			
		£ 957 10 11			£ 957 10 11
1928			1928		
Jan. 1	To Balance brought down	754 11 8	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	620 14 6
"	,, Interest	45 5 6			
		£ 823 13 9			£ 823 13 9
1929			1929		
Jan. 1	To Balance brought down	620 14 6	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	478 16 9
"	,, Interest	37 4 11			
		£ 681 16 0			£ 681 16 0
1930			1930		
Jan. 1	To Balance brought down	478 16 9	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	328 8 7
"	,, Interest	28 14 6			
		£ 531 7 10			£ 531 7 10
1931			1931		
Jan. 1	To Balance brought down	328 8 7	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	168 19 11
"	,, Interest	19 14 0			
		£ 371 19 2			£ 371 19 2
1932			1932		
Jan. 1	To Balance brought down	168 19 11	Dec. 31	By Depreciation ..	202 19 3
Dec. 31	,, Sinking Fund	23 16 7		,, Balance carried down ..	—
"	,, Interest	10 2 9			
		£ 202 19 3			£ 202 19 3

Dr.

INVESTMENT ACCOUNT.

Cr.

1926			1926		
Dec. 31	To Cash	.. ..	Dec. 31	By Balance carried down	.. ..
			£ 23 16 7		£ 23 16 7
			<u>£ 23 16 7</u>		<u>£ 23 16 7</u>
1927					
Jan. 1	To Balance brought down	23 16 7	1927		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	49 1 9
"	" Interest	.. ..			<u>49 1 9</u>
			£ 49 1 9		<u>£ 49 1 9</u>
			<u>£ 49 1 9</u>		
1928					
Jan. 1	To Balance brought down	49 1 9	1928		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	75 17 3
"	" Interest	.. ..			<u>75 17 3</u>
			£ 75 17 3		<u>£ 75 17 3</u>
			<u>£ 75 17 3</u>		
1929					
Jan. 1	To Balance brought down	75 17 3	1929		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	104 4 10
"	" Interest	.. ..			<u>104 4 10</u>
			£ 104 4 10		<u>£ 104 4 10</u>
			<u>£ 104 4 10</u>		
1930					
Jan. 1	To Balance brought down	104 4 10	1930		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	134 6 6
"	" Interest	.. ..			<u>134 6 6</u>
			£ 134 6 6		<u>£ 134 6 6</u>
			<u>£ 134 6 6</u>		
1931					
Jan. 1	To Balance brought down	134 6 6	1931		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	166 4 3
"	" Interest	.. ..			<u>166 4 3</u>
			£ 166 4 3		<u>£ 166 4 3</u>
			<u>£ 166 4 3</u>		
1932					
Jan. 1	To Balance brought down	166 4 3	1932		
Dec. 31	" Cash	.. ..	Dec. 31	By Balance carried down	200 0 3
"	" Interest	.. ..			<u>200 0 3</u>
			£ 200 0 3		<u>£ 200 0 3</u>
			<u>£ 200 0 3</u>		
1933					
Jan. 1	To Balance brought down	200 0 3			

When the same undertaking holds two, or more, Leases of varying terms, separate accounts must be opened in respect of each.

Sometimes a Lease is surrendered before it has expired in exchange (probably along with a money payment) for a new Lease for an extended term. In such case the balance outstanding on the old Lease Account must be transferred to the new Lease Account as being part of the cost thereof, and the balance of any Reserve for Depreciation Account must similarly be credited to the new Lease Account.

With regard to the Plant, Machinery, and Fixtures attached to the land, and therefore passing to the freeholder on the expiration of the Lease, it is not proposed in the present volume to discuss the vexed question as to what items do thus pass, or what exactly constitutes "attachment to the land" within the meaning of the law. For practical purposes—that is to say, for the purposes of the present volume—it may, it is thought, be taken that everything which is not in the nature of a mere ornament, and which is not capable of being detached from the land (including under that heading the buildings on the land) without disfiguring it or them, probably passes with the Freehold; but during recent years the tendency has certainly been in the direction of making an exception as far as possible in the case of trade fixtures. In considering, therefore, the factor of Depreciation in connection with such items as will pass to the owner of the land, it is important to bear in mind that the maximum term of life that can be allowed to these items must in all cases be regarded as being the unexpired term of the Lease of the property to which they are attached, for at the expiration of that term, whatever their then condition may be, they pass to the freeholder; and unless, therefore, the undertaking is to experience a loss of capital on the expiration of such Lease, it is necessary that in the meantime such provision be made by way of Depreciation as will provide

for the amortisation of the original cost of this asset. When, therefore, in the ensuing chapter reference is made to the "life," or the normal life, of an asset, it must be assumed that in the case of assets which as a matter of law pass to the freeholder on the expiration of a Lease, the life of such assets must be regarded as a period not exceeding the life of the Lease. If, however, the normal life of the asset be less than the unexpired term of the Lease, the question of attachment to the land does not, of course, arise.

CHAPTER V.

DEPRECIATION OF PLANT AND MACHINERY.

THE term "Plant and Machinery" covers a very wide range of assets, and it therefore follows that any rules that might be laid down for the writing off of Depreciation in connection therewith can only be of quite general application. As a rule it will be found desirable to open two or three separate accounts for different classes of assets coming under this group, classifying them as far as possible in accordance with their requirements as to Depreciation, and providing for the loss arising from this source separately in respect of each account. Thus, in an ordinary factory, instead of having one general account for "Plant and Machinery," it is thought that it would be preferable to have separate accounts for, say :—

- (1) Engines or Motors.
- (1A) Boilers.
- (2) Shafting.
- (3) General Machinery.
- (4) Special Machinery, adapted only to a limited number of trades.

In addition, when any particular item of Plant or Machinery is of such cost as to make it of especial importance in connection with the undertaking under review, the balance of advantage would appear to be in favour of opening a separate

account in respect of that item. For example, in a foundry the Furnaces would be most conveniently dealt with in a special account ; and in a small engineer's shop, where only one Steam Hammer is employed, the balance of advantage would appear to be in favour of a separate account for that machine. In a larger factory, however, employing three or more Steam Hammers, there is obviously less to be gained by drawing any special attention to these assets, as their relative importance, as contrasted with the machinery as a whole, will probably be considerably less.

Dealing first with ENGINES AND BOILERS, it may be pointed out that here, as elsewhere in connection with assets comprised in this chapter, the rate of Depreciation will depend very largely upon the " pressure " at which these assets are worked. In the case of Engines and Boilers, the actual steam pressure (if steam be the motive power) is, of course, in itself a very important factor ; but, apart from that, if Engines be habitually run at a high speed without reasonable periods of rest, and in particular without reasonable cessations which will permit of all necessary repairs being performed upon a permanent basis, then the life of those machines is very greatly reduced in consequence. Portable Engines, it may be mentioned, wear out much sooner than stationary Engines, partly because worked at a higher pressure, partly on account of the deteriorating effect of removal, and also by reason of the fact that, having to be easily movable, they are naturally of lighter construction than those which are intended to be stationary. With regard to Boilers, a low-pressure Boiler, if carefully used, will last for a fairly long period, assuming that soft water can be secured ; whereas a high-pressure Boiler will wear out much more quickly, and during its term of life the tubes will require frequently to be renewed. The quality of the water is, however, one of the most important factors in connection with the Depreciation of Boilers, and must therefore on no account be lost sight of.

The foregoing are the more material points that have to be considered before arriving at the rate at which Depreciation should be provided for. Assuming all the conditions to be favourable, the *minimum* rate of Depreciation may be taken at 10 per cent. upon the reducing annual balance, and under any ordinary circumstances a provision of 15 per cent. on the reducing balance may be regarded as ample. If Engines and Boilers be treated separately, the *maximum* Depreciation upon Engines, if solidly constructed, is not likely to exceed $12\frac{1}{2}$ per cent. per annum ; but the Depreciation of Boilers should then be computed at not less than $12\frac{1}{2}$ per cent., and might in extreme cases amount to as much as 20 per cent. per annum.

If provision for Depreciation be made upon the Fixed Instalment principle, the rates might be reduced to a corresponding extent ; but unless a special Reserve be made to equalise the cost of Repairs and small Renewals in different years, the fixed percentage on the reducing balance is thought to be the better method to employ, as it tends to compensate for the increased charges against Revenue in respect of Repairs, &c., as the assets become older.

GAS ENGINES AND ELECTRIC MOTORS have approximately the same working life as Steam Engines.

SHAFTING, if properly constructed in the first instance so as to avoid undue friction, will not depreciate rapidly, unless run at an excessively high speed. In practice, however, here, as in the case of all Machinery, the quality of the oil used for lubrication is an important factor in connection with Depreciation, and a careless workman, by allowing a bearing to become heated, may easily do in an hour as much damage as a year's legitimate working would cause. Within reasonable limits it may perhaps be said that there is practically no risk of Shafting becoming obsolete ; but in connection with this point, the great advances that have been made by electricity during recent years must not be overlooked. With

many kinds of light machinery the time has already arrived when electricity is a more economical motive power than either gas or steam, and of course one of the special advantages of electricity is that the motive power may be applied direct *at the point where it is wanted*, thus doing away with Shafting altogether, and although the loss of power caused by friction, slipping of belts, &c., is less than the waste caused by substituting a number of low-power motors for one high-power central engine, when power is only used intermittently, there may be a substantial saving effected by decentralisation. In the case of light machinery, therefore, the risk of obsolescence in connection with Shafting should certainly not be left out of account, and it might possibly be considered expedient to write off Depreciation at a comparatively high rate; but in ordinary cases, the necessary provision would probably amount to not less than 5 per cent. nor more than $7\frac{1}{2}$ per cent. upon the reducing balance, provided BELTING be excluded from this category, and treated separately, as explained in the following chapter.

Passing on to GENERAL MACHINERY, there are certain types of machines which may fairly be said to be beyond the risk of obsolescence. Others, again, are never likely to be superseded entirely, but improvements that tend to reduce the cost of production may in the ordinary course of events be fairly expected. Other Machinery may be frankly admitted to be of a purely temporary character, and, as such, likely to be superseded by more modern inventions at an early date. This latter class, however, is better dealt with separately under the heading of "Special Machinery." With regard to ordinary Machinery, unless the very best kind of workmanship be put into the machines there would appear as a rule to be reasonable ground for supposing that they will be worn out before they become useless through being obsolete. In such cases, the risk of obsolescence may naturally be left out of account; but if the general character of the business is such that the risk, even if not serious, is at least

conceivable, then naturally a more than ordinarily liberal rate of Depreciation should be provided. In the case of a normal factory, if all Machinery (save Special Machines) be classed together, a 10 per cent. rate on the reducing balance will, as a rule, be sufficient to provide for wear and tear, if the Machinery be substantially constructed and carefully worked—not at over pressure—and kept constantly in thorough repair. Small Renewals, such as bearings and other working parts, should, however, be treated as Repairs, and charged against Revenue accordingly. A provision of $12\frac{1}{2}$ per cent. on the reducing balance may, it is thought, be regarded as an outside limit to cover any loss that is likely to be experienced through ordinary wear and tear, unless plant be of light construction, or the conditions of work unusually trying.

With regard to **SPECIAL MACHINERY**, the balance of advantage would appear to be in favour of opening several different accounts, so that if necessary each separate Machine may be dealt with upon its merits, for it is here that the most uncertainty prevails with regard to loss actually accruing from time to time. Hence the importance of being readily able to compare the position of affairs with the estimate recorded in the books. Speaking generally, the newer the type of a Machine the greater the likelihood of its being superseded at an early date by a more improved type; but although this is perhaps the main risk with regard to obsolescence, there is in many cases the risk that a whole industry may die out, as being rendered unprofitable by altered conditions—such as a foreign tariff, and the like. Machinery that is only adapted to the requirements of a particular trade must be regarded as depreciating far more rapidly than Machines of general utility (such as Steam Hammers, Planing Machines, Lathes, Drills, and the like), and if a Machine be employed for manufacturing an article dependent upon fashion, then obviously the proper provision for Depreciation is a highly-speculative item. Sometimes it may be possible so to frame these Machines that they may be adapted to changing

fashions without any very great expense (as, for example, when different patterns of carpets, &c., may be woven from the same Loom with trifling alterations), but in many cases the exact nature of the article manufactured is an essential part of the *principle* of the Machine, and the Machine is then only of "scrap" value if the demand for that particular article ceases. Such Machines, in an extreme case, may be regarded perhaps more in the light of Patterns and Moulds than Machinery, properly so called, and the proper Depreciation may amount to anything up to 50 per cent. on the reducing balance. Speaking in quite general terms, however, it is thought that where the risk of obsolescence is worth considering at all, 15 per cent. on the reducing balance might be regarded as the minimum rate, and 20 per cent. or 25 per cent. a maximum, save under quite exceptional circumstances.

When the rate of Depreciation necessary to write down an asset in accordance with known (or estimated) facts exceeds, say, 12½ per cent., the heavy charges against the first year's Revenue are such as to encourage the employment of the Straight-Line System as opposed to the Fixed Percentage System. It is thought, however, that these are the very cases in which the latter is especially desirable, and the former particularly unsuitable; for in cases of doubt, unquestionably the wisest course to pursue is to write down the value of the asset considerably at the earliest possible moment, and the increased rate that the Fixed Percentage System necessitates is therefore an argument in favour of its adoption. Highly speculative trades should produce a correspondingly high rate of profit, and, if they fail to do so, it should be the function of the accounts to draw attention to the fact that the profit earned is not a reasonable compensation for the risks involved.

It is perhaps unnecessary to mention here that, inasmuch as the rate employed is, in the nature of things, an estimate only, it is impossible to fix in advance a rate at which Depreciation is to be provided which can at all times thereafter be

looked upon as fixed and unalterable. In the case of those assets which have been in general use for a great number of years past, the accumulated experience of manufacturers may perhaps afford a fairly reliable basis, but even then the conditions obtaining in different factories vary so greatly as to allow a wide margin of error in each individual case. It is thought therefore that, whatever method, or rate, be employed for writing off Depreciation, the circumstances and the facts should be reviewed (say) not less often than once in five years, an independent valuation of the assets being then obtained and compared with the balances shown against the various asset accounts in the books. The valuation is not necessarily, of course, to be regarded as an absolute statement of fact, seeing that it is in itself merely the expression of an independent expert's opinion ; but it affords a very valuable basis with which to compare the book figures, being arrived at by independent persons by an entirely different mode of calculation. And although, therefore, it does not necessarily follow that the book figure should be corrected so as to agree with the expert's valuation, the latter may very usefully be employed for the purpose of reconsidering the basis upon which Depreciation has been provided for in the past, with a view to revising that basis if any material discrepancy be disclosed between the two results.

It will be seen that, hitherto, in connection with the capital sunk in Plant and Machinery, the question of INTEREST has been entirely ignored, although in connection with the Depreciation of Leaseholds it has been recommended that interest be taken into account. The reason for this apparent discrepancy lies partly in the fact that the average life of Plant and Machinery is not sufficiently long to make the question of interest a serious one, and also in the circumstance that the due provision for Depreciation in connection with these assets is a matter quite sufficiently difficult in itself, without introducing additional complications if their presence can be avoided. So far as the actual provision made in the books of

account is concerned, it is thought that questions of interest are best ignored, but this work would not be complete if it did not draw attention to the fact that the basis upon which provision for Depreciation is usually made (and which is here recommended for practical purposes) is not in itself sufficiently scientific to be reliable for *all* purposes. It is accurate enough to apportion the cost of upkeep reasonably over the several years that comprise the life of the asset, but it is not sufficiently accurate to enable the relative advantages of expensive, durable Machinery to be contrasted with those of cheap, lightly constructed Machinery. For example, it would probably be no exaggeration to say that a really first-class Screw-Cutting Lathe could not (before the war) be purchased for much under £100, and that with reasonable care, and proper repairs and small renewals, such a machine would turn out good work for 50 years. On the other hand, a similar Lathe, but more lightly constructed, could be purchased for about £30, which, although not absolutely accurate, would for the vast majority of purposes be accurate enough, and would effectively turn out all classes of work, save the very best, for (say) ten years. Now, comparing the relative cheapness of these two articles, it will be seen that if the Fixed Instalment mode of Depreciation be adopted, the advantage is upon the side of the more expensive Machine, which requires only £2 per annum to be charged for Depreciation, against £3 per annum for the cheaper. If the Fixed Rate upon the reducing balance be employed, the advantage is still in favour of the more expensive machine ; for—taking a residual value at 10 per cent. upon the cost in each case—the Depreciation in the first year will be £4 per annum for the more expensive, and £6 per annum for the cheaper, machine. But if we take into account the interest on the money sunk in purchasing these machines, and therefore employ the Annuity System, we see at once that the balance of advantage is clearly in favour of the cheaper article ; for, even taking money as being only worth 5 per cent. per

annum (a low rate in connection with industrial undertakings), the necessary provision for Depreciation is only £4 6s. 6d. per annum for the cheaper article, and £5 9s. 7d. per annum for the more expensive. It need, perhaps, hardly be added that, when the risk of obsolescence obtains to any appreciable degree, it affords an additional argument in favour of the employment of the cheaper and more lightly constructed plant, rather than that which is more expensive and more solidly constructed.

In all cases where the adoption of the methods described in this chapter would involve the opening of an undesirable number of accounts in the General Ledger, it will be found convenient to keep a (subsidiary) Plant Ledger comprising the separate accounts. In that event only one "Plant and Machinery Account" need be opened in the General Ledger, which will serve as an "Adjustment Account" controlling the Plant Ledger. This latter may conveniently be in tabular form, devoting a folio to each financial period, and a line to each item in the Plant inventory.

CHAPTER VI.

DEPRECIATION OF LOOSE TOOLS, &c.

UNDER this heading it is convenient to group all those fixed assets ordinarily found in a factory that are not in any way attached to the premises, and which therefore are not merely subject to the ordinary risks of Depreciation, but also to the risk of peculation. In connection with these items, therefore, it is necessary not merely to see that Depreciation is provided for at a proper rate, but, further, to see that the assets actually remain in existence.

Dealing first of with Loose Tools (under which heading Belting may conveniently be included, on account of its perishable character), it may be pointed out that, inasmuch as the expectation of life with regard to these items is normally very low, to some extent the daily requirements of the business would involve the assets being maintained up to a certain standard, and the mere fact that the business continues to be carried on is (to some extent) presumptive evidence that these assets *are* maintained at something approximating to their original value. It is thought that, for practical purposes, it is hardly possible to do better than to debit *all* expenditure under these headings during the first three years of the business to a "Loose Tools Account," writing off Depreciation at the rate of 10 per cent. per annum. After the third year *all* expenditure in respect of Repairs and Renewals should be treated as Revenue expenditure, no further entries being made either to the debit (or the credit) of the

Loose Tools Account. In the case of a progressive undertaking, however, this plan will tell unduly harshly against Revenue, and in such cases it may be thought desirable, say, every five years, to have a valuation taken of the assets actually in existence. The balance of the account may then be adjusted to agree with the amount of the valuation, the difference (if small) being taken to Revenue Account ; or, if large, written off to Revenue Account during the ensuing five years, when another valuation should be taken. At the end of ten years it is probable that sufficient experience will have been accumulated to enable a fairly reliable apportionment of expenditure to be made as between Capital and Revenue.

With regard to MOULDS, PATTERNS, and the like, almost every manufacturing business has some assets corresponding with this class ; but whereas in some cases they represent considerable expenditure, in others their intrinsic value, and also their residual value, may be comparatively trifling. Unless the item is of sufficient importance to cause the treatment to press unduly against Revenue Account, it is recommended that all expenditure under this heading should be treated as Revenue expenditure, any value that there may be remaining in the assets in question being then in the nature of a "Secret Reserve." But when the Patterns or Moulds are costly, this somewhat heroic treatment is, of course, impracticable. The tendency in such cases will usually be found to be in the direction of attempting to charge the whole cost to Capital, as representing permanent outlay for the development of the business. It should be borne in mind, however, that whereas upon the one hand Moulds, or Patterns, that are being frequently used generally wear out very quickly indeed, on the other hand, those Moulds, or Patterns, that are but rarely employed have little (if any) value in excess of their scrap value—as firewood or old metal, as the case may be. Consequently, from whichever point of view the matter be regarded, it is clear that,

save in very exceptional cases, these assets should be looked upon as being of a highly perishable nature, and should be written off at a rate of certainly not less than 25 per cent., and more probably $33\frac{1}{3}$ per cent., of the reducing annual balance. In extreme cases, where the Patterns are not likely to be of use for more than the current season, the whole cost should be charged against Revenue during the year in which it is incurred.

The argument is often put forward that a special value attaches to Patterns relating to patented appliances or other proprietary articles. This, however, is entirely fallacious. If any value attaches to the Patent, that value should be included (if anywhere) under the heading of the Patent itself. On the other hand, some manufacturers take the view that all expenditure upon Patterns is, without exception, Revenue expenditure, any advantage attaching to the possession of the Patterns being, in their opinion, something in the nature of GOODWILL. There is undoubtedly a good deal to be said in favour of this view, although perhaps (like the preceding) it goes somewhat to extremes ; but, speaking generally, there can be no question that all "special" Patterns (that is to say, all Patterns in respect of articles not in daily demand) should be charged up against the job in respect of which they were first made ; and if they have been so charged they have, of course, been charged against Revenue and no balance remains that is capable of being capitalised.

It can perhaps hardly be said that HORSES come properly under the heading of this chapter, but the present moment appears to be the most convenient one to deal with Depreciation upon this kind of asset. If Depreciation be provided for by any of the ordinary methods, it need hardly be pointed out that it is in the first place essential that the number of Horses should at all times be constant. If a large number of Horses be employed, it would probably be sufficient to charge from 10 per cent. to 15 per cent. of the original

expenditure during the first five years against Revenue, after which the balance may be permanently upheld as an asset, all Renewals after the first five years being charged against Revenue. If the number of Horses be increased, extensions may properly be debited to the Asset Account ; but if for any reason the number be reduced, the Asset Account must be correspondingly reduced, or a special Reserve made to cover the cost of re-establishing it upon its former basis.

With a large number of Horses the cost of maintenance upon these lines will very fairly average itself ; but with any number less than (say) 20, the charges against any one year may easily become very unequal, and therefore require equalising. A good plan in these cases is to have a revaluation every five years, and to correct the Ledger balance upon these occasions so as to agree with the amount of the valuation. Pending such experience as may be gained from two or three such valuations, Depreciation should be provided for as may seem best, having regard to the special circumstances of the traffic. Horses that are required to work at a good pace deteriorate much more rapidly than those that are only required to walk ; and where they are required to draw heavy loads in addition to moving quickly, the rate of Depreciation is especially marked. Again, hard roads will cause more Depreciation than ordinary country roads, or even macadamised roads, apart from the increased expenditure in connection with shoeing. Yet again, if a certain standard of appearance has to be maintained, the rate of Depreciation will be materially higher than if appearances are not considered.

Probably the safest way would be, in the first instance, to provide for Depreciation at a rate between 15 per cent. and 25 per cent. per annum on the reducing balance, correcting the figure when a revaluation takes place at the end of five years. It may be pointed out, however, that, without waiting for an actual revaluation, something in the nature

of a check upon this provision may be obtained by comparing the average price *per Horse* from time to time. With a large number of Horses, the average price ought not to vary; with a small number of Horses, it ought to be an easy matter to trace a connection between a variation in the average price and the state of the Horses themselves. Or, to put it another way, while the number of Horses and their average age remain constant, their aggregate book value may very well remain constant, too.

MOTOR LORRIES.—The Depreciation of Motor Lorries will depend partly on the make, partly on the nature of the work, and partly on the care with which they are driven. From 25 per cent. to 33½ per cent. of the reducing annual balance may be regarded as a reasonable provision until such time as experience may call for its revision—upwards or downwards, as the case may be.

CHAPTER VII.

DEPRECIATION OF OTHER FIXED ASSETS.

IN the present chapter it is proposed to consider the provision (if any) necessary to cover the Depreciation of such intangible assets as Patents, Copyrights, and Goodwill.

Dealing first of all with PATENTS, it is clear that, inasmuch as the extreme limit of life of a Patent is 14 years,* Patents are in the nature of Leases of a monopoly for that (or for some shorter) period. As such they ought, strictly speaking, to be treated as Leases, and depreciated accordingly. It may be pointed out, however, that, inasmuch as no asset ought ever to appear in the books of an undertaking at a figure in excess of its actual cost, the question of providing for the Depreciation of Patents can only become of serious importance when Patents have been *purchased*. In the books of the inventor the maximum sum at which a Patent could legitimately be capitalised would be the amount *bonâ fide* expended in the experiments that culminated in the invention, and the fees necessary to obtain the grant of Letters Patent in the first instance.

This somewhat drastic view with regard to Patents may, however, require considerable modification in practice. Although in theory a Patent expires in 14 years at the outside, by a judicious registration of "improvements" the actual effective monopoly of an invention may often be

* In special cases an extension of life may sometimes be obtained, but, of course, this must not be taken into account in determining the annual charge for depreciation.

extended over a far longer period. Again, if it is permissible to take into account the residual value of a tangible asset when assessing the rate of Depreciation, it is equally permissible to adopt the same course with regard to intangible assets, and a valuable Patent must always have a considerable residual value in the nature of Goodwill. A Patent that is worthless should unquestionably be written off as a loss, if possible, without waiting for the 14 years to expire; and it would be so written off in *all* cases, if every true Revenue charge were charged against Revenue Account. Unfortunately, however, the law does not require this to be done, and accordingly we have the fiction of "Losses on Capital Account" that need not be written off—a fiction which gives rise to the retention in Balance Sheets of so-called "assets" that have little or no intrinsic value. But with regard to valuable Patents, it seems questionable whether it may fairly be said that, even at the expiration of the monopoly, there has been any diminution in the intrinsic value of the asset owned by the undertaking, for in some cases at least the value of that asset (which here includes Goodwill) may be steadily increasing as the life of the Patent gets shorter. On the other hand, it is clear that at least *one* source of Revenue will be lost when the Patent lapses—namely, the Revenue to be derived from the granting of licences for the user of the Patent by other persons—consequently, whatever may increase in value *something* (namely, the capitalised value of these Licences) must have been lost. All these matters, however, rest upon so uncertain a basis that it is not surprising that the attempt is rarely made seriously to compute the proper charge against the Revenue of each successive year in respect of the Depreciation of Patents. The generally accepted view appears to be that it is better to accumulate a General Reserve, rather than to attempt to write down the value of the asset; and, inasmuch as it is at the best absolutely impossible to determine accurately the annual profit of any undertaking in which Patents

form a large item, this method is doubtless as good as any other, and it possesses in addition the advantages of simplicity.

COPYRIGHTS are assets of very much the same description as Patents, save that their theoretical term of life is longer, being now ordinarily the life of the author and a period of 50 years after his death. On the other hand, by reason of this increased length of legal life, they are especially subject to the risks of obsolescence ; that is to say, the actual demand for the work in question may have been—and, indeed, generally is—exhausted long before the legal Copyright lapses. Speaking generally, the necessity of providing for Depreciation of Copyrights does not seriously arise, because under no circumstances should they be capitalised at a sum in excess of their original cost. But occasionally Copyrights change hands, and for successful works very large sums have from time to time been paid. The only safe way to regard money expended upon the purchase of a Copyright is to treat it as the purchase-money of a terminable annuity of quite short duration.

The usual custom is to regard a Copyright as being worth three years' purchase of the profits produced. This, however, is an entirely fallacious basis, as will shortly be shown. In the first place, however, it is convenient to point out that by far the best plan is to regard all payments (including the cost of Copyright) as being part of the cost of producing, if not the first edition, at least a certain definite number of copies which there can be no reasonable doubt will eventually be disposed of at a proper price. If this plan be adopted, Copyrights will be regarded as *Revenue Expenditure, spread over a comparatively short term of years*, and this, it is thought, is the only really safe basis to adopt. With many publishers, however, the custom appears to be general of re-valuing Copyrights from time to time upon the basis of three years' purchase, writing up some, and writing others down,

according to the success achieved by the respective works. In so far as the plan operates to write off unproductive Capital Expenditure it is unquestionably prudent, but in so far as it operates to write *up* productive Capital Expenditure (crediting Revenue with the excess) it is entirely fallacious, and it is probably responsible for the non-success of many publishing companies. For all practical purposes the value of a Copyright is upon the same lines as the value of a Goodwill ; and although it may vary greatly in *intrinsic* value from time to time, such variations, if upwards, are not current profits, and, if downwards, are not proper charges against the current profits of the period. To take a quite simple case, if a Capitalist invests £100 in shares in a limited company, and at the end of the year that company pays a 20 per cent. dividend, then the Capitalist's income from this investment is clearly £20, neither more nor less. If, as a result of the 20 per cent. dividend, the shares are saleable for £200, this circumstance does not in itself make the Capitalist's profit for the year £120. The £100 rise in the Capital value of his investments represents the market's estimate of the "present value" of future dividends in excess of the normal rate of interest, and this £100 cannot be obtained *except by sacrificing the profits of future years*. In the same way, if Copyrights be written up in value, the direct effect (and indeed the only effect) is improperly to anticipate profits, which (if ever earned) belong to future periods, and not to the period under review.

The same remarks apply, of course, to the writing up of the value of GOODWILL, but this is a point that is probably sufficiently clear to make emphasis unnecessary. The more common fallacy with regard to Goodwill is to suppose that it is proper—and only prudent—to write it *down* by charging Depreciation thereon against Revenue. Even if the value of a Goodwill has actually become less, the loss is a Capital loss, and not a Revenue loss, and need not, therefore, be charged against Revenue Account, although it may be

prudent so to do ; but, however that may be, it is clearly not only unnecessary but also improper to write Depreciation off the cost price of Goodwill, when as a matter of fact no such Depreciation has taken place. If it be thought desirable not to distribute profits that have been earned, there is no difficulty whatever in the way of transferring such profits to a Reserve Fund ; but it is as incorrect to debit Revenue Account with non-existent losses as it is to credit Revenue Account with non-existent profits. The practice is popular with a certain class of Director, because it creates a Secret Reserve, and increases the Working Capital available to carry on the business of the Company. The only time when Goodwill is a wasting asset is when the business is manifestly of a temporary character.

CHAPTER VIII.

RESERVES—SECRET RESERVES.

A RESERVE may be defined as a provision charged against profits with a view to covering an expected loss. The term therefore covers a range far wider than mere Depreciation, inasmuch as Reserves may be made *inter alia* to cover loss arising from Bad and Doubtful Debts, Disputed Claims, Contingent Liabilities, &c. &c. From the point of view of accounts, a Reserve may be said to be provided whenever a sum is charged against Revenue without the corresponding credit operating to reduce the debit balance upon an account representing an asset. Thus if a Book Debt be written off as "bad," the ordinary bookkeeping entry is to the credit of the insolvent customer and to the debit of Bad Debts Account, and no Reserve is thus created; but if a debt (or series of debts) is not bad, but merely doubtful, it is undesirable actually to extinguish the debit in the Customers' Ledger, while at the same time it is still necessary to debit Revenue with any loss which it is thought may be likely to occur under this heading. Under these circumstances, the course ordinarily pursued is to debit Bad Debts Account (and, therefore, in due course, Revenue Account) with the estimated loss, and to credit a corresponding sum to an account headed "Reserve for Bad and Doubtful Debts." This last account is—as its name shows—in the nature of a Reserve Account. In the same way, a Reserve is sometimes created to cover loss by Depreciation, especially when the Fixed Instalment System is employed (*vide* p. 31), or when the

Double-Account System is employed (*vide* p. 67), as in either of these cases there are practical objections to the Asset Account being credited, and the original outlay in respect thereof being thus reduced.

Other Reserves that frequently occur in practice are in respect of Repairs and Renewals, or occasionally in respect of both combined. When it is decided to equalise varying charges in respect of Repairs and/or Renewals as between successive years, it becomes necessary to have recourse to a Reserve Account, which is periodically credited with the equated charge debited to Revenue, and debited with the actual outlay in respect of Repairs and/or Renewals. Such an account should under all normal circumstances show a credit balance, representing the provision that has been made in excess of the actual outlay. Occasionally—e.g. in the event of an unforeseen breakdown of machinery—such an account may (for a very limited time) be allowed to show a debit balance; but under all normal circumstances, the Reserve Account should be in credit—particularly so during the earlier years of the undertaking, when (owing to the comparative newness of the fixed assets) the amount that can usefully be expended upon Repairs and Renewals would of necessity be below the average expenditure, save under quite abnormal circumstances.

A Reserve created to cover loss through the deterioration in the value of any specific class of asset should, as a rule, be shown in the Balance Sheet, *not* as a liability, but as a deduction from the particular asset in respect of which it has been created. When, however, a Reserve has been created to cover a *general* loss in respect of all assets, this procedure is no longer practicable, and under these circumstances the Reserve must appear as a liability in the Balance Sheet. If, however, it be so stated, it is important that it should be earmarked as a Reserve to cover *loss* in respect of Depreciation (or whatever the estimated source of loss

may be), as otherwise there is a serious danger of such a Reserve being confused with the Reserve *Fund*, which is an entirely different matter.

When a Reserve is deliberately accumulated in excess of the estimated loss that is likely to occur under that particular heading, the excess constitutes a SECRET RESERVE made to cover future but unmatured losses, because experience shows that, as a rule, these losses exceed expectation. But occasionally Reserves are provided far in excess of any loss that may reasonably be expected, even by the most pessimistic. Such Reserves are, of course, indefensible theoretically, for it is as improper to underestimate as it is to overstate the profitable nature of an undertaking; but although it would be difficult to find any theoretical argument to support the deliberate provision of Reserves in excess of all expected requirements (i.e. the creation of SECRET RESERVES), it must be admitted that the practice is—within reasonable limits—a prudent one; and one, moreover, that is very generally countenanced by most thoroughly sound business men. The custom probably has its origin in the notorious greediness of shareholders, who, in their thirst for large dividends, as a rule oppose by all means in their power the formation of really adequate Reserve Funds; but, in addition, it may be pointed out, in favour of Secret Reserves, that, while *prima facie* a Reserve Fund may be used for (and is especially suitable for the purpose of) equalising dividends, if it were so employed to any considerable extent, the material fluctuations in the amount of the Reserve Fund from time to time would in all probability have a somewhat serious effect upon the credit of the undertaking. Admittedly one of the chief objects in creating a Reserve Fund at all is to enable the customary dividend to be paid, even in unprofitable years; but to *employ* the Reserve Fund for that purpose is, somewhat illogically, almost invariably looked upon as a sign of the gravest weakness. Hence, doubtless, the creation of Secret Reserves.

It is especially in connection with Banks and other allied undertakings that Secret Reserves are most prevalent, and here they usually take the form of an excessive provision for loss by way of Bad and Doubtful Debts, the "secret" being maintained by deducting the amount of the Reserve from the amount of the debtors in the Balance Sheet without showing the figures in detail.

Another form of Secret Reserve (which is certainly less defensible, as being of a purely artificial character) is the deliberate writing down of fixed assets, such as Premises, at a rate far in excess of all legitimate requirements in respect of Depreciation. In many cases this takes the form of entirely eliminating from the Balance Sheet fixed assets of very considerable value. An extreme instance of this is afforded by the accounts of the Bank of England, which omit all reference to the Freehold Premises of the Bank, which at a moderate computation have been estimated to be worth upwards of two millions sterling. Apart from the obvious objection to such omissions, as rendering the accounts incomplete in themselves, it may be pointed out (1) that the omission of valuable assets opens the door to the verification of these assets being altogether overlooked by the Auditors; (2) it is practically impossible to have recourse to such Reserves in bad times without drawing such prominent attention to the fact as effectually to do away with all possible arguments that could be raised in justification of the employment of Secret Reserves at all.

CHAPTER IX.

RESERVE FUNDS.

A RESERVE FUND is a sum set aside *out of divisible profits*, and retained in hand for the purpose of strengthening the financial position of the undertaking. It differs from a Reserve in that it is impossible to create a Reserve Fund, save out of divisible profits ; whereas a Reserve may be provided even during periods when a loss has been sustained. A Reserve Fund is but a portion of the credit balance of the Profit and Loss Account, which has been specially "earmarked" as being "reserved." If, therefore, at any subsequent date, losses be sustained which cause the Profit and Loss Account to show a *debit* balance, any credit balance that there may be upon the Reserve Fund must be at once applied (so far as it goes) towards extinguishing this debit balance. It would be a contradiction in terms to state, upon the same Balance Sheet, an item representing a deficiency on Profit and Loss Account, and another item representing a surplus on Reserved Profits. The continued existence of a Reserve Fund is dependent upon the continued existence in the undertaking of the profits out of which that Fund was originally created. If those profits have been absorbed in subsequent losses, the Reserve Fund automatically ceases to exist.

It will thus be seen that the popular view that a Reserve Fund is only "real" when represented by specific investments outside the business, of a corresponding value, is entirely misconceived. A Reserve Fund represents nothing more than the fact that certain profits (1) have been made,

(2) have been set upon one side, or reserved, and (3) are still in existence. All that is necessary, therefore, to constitute a "real" Reserve Fund is the continued existence of a corresponding sum of undivided profits—that is to say, the maintenance of a corresponding surplus of assets over liabilities. The exact *form* that these assets take has nothing whatever to do with the reality, or otherwise, of the Reserve Fund.

It is possible, of course, to invest money as contributions are set aside and credited to Reserve Fund, and in many cases it is very desirable that this course should be pursued; but the operation of investing the surplus assets is in the nature of raising a Sinking Fund, and has nothing whatever to do with the formation or maintenance of the Reserve Fund *per se*. Thus, if the investments which are supposed to "represent" a Reserve Fund be sold, and the proceeds applied towards redeeming Debentures (or paying off any other liabilities) such a procedure in no way affects the existence, or the "reality," of the Reserve Fund itself. *Per contra*, subsequent losses in trading may absorb the balance to the credit of Profit and Loss Account, and also the whole of the undivided profits transferred to Reserve Fund: under such circumstances the Reserve Fund ceases to exist, even although certain investments which were supposed to "represent" that Reserve Fund may still remain intact.

In practice one often comes across the expression that certain Debentures have been redeemed "out of profits," and a resolution is occasionally passed to the effect that a portion of the balance of available profits be applied towards the redemption of Debentures. It is a physical impossibility to apply either Profits or Reserve Fund to such a purpose, as will readily be perceived by anyone who attempts to pass an entry in the books of account purporting to carry out such a resolution. At the same time, it is, of course, clear that liabilities can only be discharged by effecting a corresponding reduction in assets. The payment of liabilities thus *pro tanto* reduces the Working Capital, and if there be no Working

Capital available for the repayment of liabilities (that is to say, if the fixed assets belonging to the undertaking be in excess of its fixed liabilities) the only possible means of providing the necessary funds to pay off liabilities is by specifically setting aside some of the floating assets. The assets so set aside naturally cannot be employed for the payment of two different kinds of claims. If, therefore, it be elected to apply them towards the payment of liabilities, the amount of assets available for the payment of Dividends is *pro tanto* reduced. But the amount of profits out of which Dividends may legally be paid remains the same as before. If, however, all available assets be employed in the repayment of liabilities, it is clear that Dividends can only be paid by raising other liabilities in another direction. Such a procedure might, of course, be legal, but would in no way advance the position of affairs. If, therefore, with a view to improving the position of an undertaking, it be decided to pay off liabilities out of assets which have been accumulated in hand as a result of allowing profits to accumulate, then clearly the assets so employed cannot also be employed to pay Dividends. Therefore, although it might be legal to divide the profits shown by the Profit and Loss Account, there are in these circumstances practical difficulties in the way of effecting such a distribution. To avoid the anomaly of retaining on the Profit and Loss Account a balance which is not physically available for distribution (and which it is not intended to divide) the usual practice is to transfer the amount so diverted from the payment of Dividends to the credit of Reserve Fund, and a Reserve Fund so created is as "real" as it is possible for any Reserve Fund to be.

Another example showing the fatuity of contending that a Reserve Fund is only "real" when represented by specific investments in other undertakings may not be out of place. Suppose an undertaking with undivided profits amounting to £5,000 which have been transferred to Reserve Fund, and which (for want of a better form of investment) have in the

meantime been applied in the purchase of Consols: suppose further, that at a later stage the opportunity offers for the company to purchase the Ground Rents in connection with certain Leasehold property that it owns—thereby converting its Leaseholds into Freeholds. If these Ground Rents can be purchased for £5,000, and the investment in Consols sold for that sum, the transaction may readily be carried through and the only effect (so far as the books of the undertaking are concerned) is that it ceases to have any investment in Consols, but its investment in Leasehold Properties is converted into an investment in Freehold Properties worth £5,000 more than before. The Reserve Fund, as a matter of fact, undoubtedly continues to exist, for it continues to be a fact that the company has £5,000 of divisible profits reserved. If, however, the argument that it is the investments that are the "real" Reserve Fund be sound, then it is clear that the Ground Rents have been purchased with the Reserve Fund, and the Reserve Fund can therefore no longer exist. Here, again, those who may feel in doubt upon the subject may be recommended to compile *pro formâ* Balance Sheets showing the position of affairs both before and after the supposed transaction has been carried through.

But although it is, for the reasons already mentioned, maintained that a Reserve Fund is neither more nor less than undivided profits that have been specially set aside and are still in existence, it must not on that account be supposed that the practice of effecting investments outside the business to a corresponding extent is one to be discouraged. The existence of profits pre-supposes the existence of a corresponding increase in the balance of assets over liabilities, and if it be decided not to divide those profits (and, therefore, not to apply the corresponding surplus of assets in the payment of dividends to shareholders), the question naturally arises as to how those assets may most suitably be employed. If the reason for reserving the profits be the desirability of increasing the Working Capital of the undertaking, then

clearly the proper—and, indeed, the only reasonable—course to pursue is deliberately to employ the surplus assets thus withheld from the shareholders *as* Working Capital—to do which it is necessary to retain them in the business. But, save under these circumstances (which in practice are somewhat exceptional), it is clear that, in so far as the profits reserved have any real existence, they represent assets which are not required for the purpose of carrying on the business, for an undertaking that has sufficient Working Capital does not require any increase of Working Capital. It is conceivable that, for a limited period, the necessity might arise to retain increased Working Capital, owing to the difficulty of turning floating assets into cash ; but if the stated profits be real, this difficulty can only be of a purely temporary nature, unless it involves the need of additional Working Capital. It thus follows that in many cases the assets representing the reserved profits *cannot* usefully be employed in the business itself, and under these circumstances it is clearly desirable that they should be employed in some other useful manner, the most obvious employment being in suitable investments outside the business. The advantage of such investments is in all cases analogous to the advantage of a Sinking Fund to provide for any other kind of contingency, in that it enables the undertaking readily to place its hands upon a definite sum of money whenever the need for an immediate supply of cash may arise.

It thus follows that, in the absence of any special reason to the contrary, it is desirable that, as the Reserve Fund is accumulated, corresponding investments should be accumulated outside the business ; but there is no more intimate connection between the Reserve Fund and these investments than there is between any other item upon the liabilities' side of the Balance Sheet and any other item upon the assets' side. The continued existence of the Reserve Fund will depend solely upon the continued existence of a corresponding surplus of assets as a whole over liabilities as a whole.

CHAPTER X.

SINKING FUNDS.

THE term "Sinking Fund" is used in various connections, with the result that considerable misapprehension has arisen as to its exact nature and significance. The term was first applied to the Revenue moneys employed by the State from time to time to reduce the National Debt by the cancellation of Government Stock. At the present time it is very widely used to cover *any* systematic accumulation of moneys for the repayment of liabilities becoming due at definite future dates, and is employed in this sense in connection with the accounts of Local Authorities. These bodies can only obtain authority to raise Loans upon condition of providing—out of the rates, or out of the profits of their trading departments—a fund which will at the end of a specified period have accumulated to the amount of the Loan, and thus be available to redeem the Loan which then matures.

That the annual provision may be sufficient to provide the necessary moneys at the end of the term it is necessary to inquire, in the first place, what rate of interest* it will be possible to earn upon the annual instalments set aside, and then to calculate what sum per annum will, at this rate, amount to the required sum at the end of the prescribed term. From time to time, of course, the annual instalments will require to be adjusted, as the rate of interest actually earned on the investments will naturally be sometimes below, and sometimes in excess of, the anticipated rate.

* *Less* Income Tax, of course, unless the undertaking is exempt from Income Tax.

In the accounts of Local Authorities it is clear that moneys specifically set aside for the purpose of repaying in the future liabilities that then mature must come from somewhere, and unless, therefore, they can be set aside out of the net profits realised on trading undertakings, they must be provided by a charge upon the rates, thus increasing the Revenue receipts of the undertaking to a corresponding extent. In the case of Sinking Funds built up out of rates, it is thus essential that the amount of the annual instalment in respect of Sinking Fund should be debited to Revenue as an expense, the book-keeping entry (expressed in Journal form) being "Revenue Account, *Dr.* to Sinking Fund Account." By this means a Sinking Fund Account (which is in the nature of a Reserve Fund) is gradually built up out of surplus Revenue. But in order that there may be funds available to redeem the loan when it matures, it is necessary that, each time an instalment is credited to Sinking Fund Account, a corresponding sum of money be taken out of the general assets of the undertaking and invested in authorised securities. The entry in respect of this transaction would be to the debit of the Investment Account and to the credit of Cash; so that the effect upon the Balance Sheet each time an instalment is set upon one side is to reduce the credit balance on Revenue Account, and increase the credit balance on Sinking Fund Account, simultaneously reducing the debit balance on Cash Account, and increasing the debit balance on Investments Account. Whatever income may be derived from these investments is debited to Cash and credited to Sinking Fund Account; and upon the income being re-invested, Cash is credited and Investments Account debited, so that at all times the credit balance of the Sinking Fund Account *should* agree with the debit balance on Investments Account. When the Loan matures, the investments may be realised (when Investments Account will be credited and Cash debited), and the money be applied towards the redemption of Loans, Loans Account being debited and Cash Account credited. The Sinking Fund

Account is in no way affected by these last transactions ; but the contingency in respect of which the Sinking Fund was created being now passed, the term " Sinking Fund " becomes a misnomer, and the more general term " Reserve Fund " is more appropriate. Occasionally this item appears under the head of " Loans Redeemed," but perhaps the clearest description would be " Accumulations of Revenue which have provided the Wherewithal to Redeem Loans."

In the case of Sinking Funds raised to pay off Loans in respect of trading departments, the profits of the trading department are looked to in the first instance to provide the necessary funds, and recourse is only had to the rates if the trading departments produce no profits, or insufficient profits. In all other respects the entries are naturally upon precisely the same lines as those already described.

From the trading department of a Local Authority it is but a step to the accounts of an ordinary commercial undertaking. Trading companies often issue Debentures under such terms that it becomes necessary—or, if not necessary, at least desirable—that they should provide beyond question for the redemption of those Debentures upon maturity by the creation of a Sinking Fund. The operation of a Sinking Fund in such a case is in all respects identical to its operation in the case of the trading department of a Local Authority, and the entries in the books will be upon precisely the same lines, the annual instalments being here again debited, not to the Profit and Loss Account, but to the Net Revenue (or Profit and Loss Appropriation) Account, being in fact in the nature of an " earmarking " or disposal of profits that are legally divisible, but which it is deemed expedient not to divide. The only advantage—and, indeed, the only object—of raising a Sinking Fund Account here, as something separate from the general Reserve Fund, is to ensure (1) that at no subsequent date is the Sinking Fund Account encroached upon to equalise dividends, or for any purpose other than the

repayment of loans ; and (2) that it draws prominent attention to the fact that certain investments are earmarked as being intended to be applied solely towards the redemption of borrowed moneys. The distinction is, however, purely artificial, because unless the moneys are invested in the names of trustees for the benefit of the Debenture-holders, they remain the property of the company, and in the event of that company going into liquidation would have to be dealt with as part of the general assets of the undertaking.

The great financial advantages arising from the formation of a Sinking Fund to provide the wherewithal to meet large payments coming due at a future date has led in many cases to a similar process being adopted when it is desired to make sure of a fixed sum for *any* purpose at a future time. In many cases it is a matter of the greatest convenience to be able thus to provide the wherewithal to make good the ravages of Depreciation by acquiring further assets in place of those that have become useless. When the probable expenditure in respect of the renewal of wasting assets is approximately equal from year to year, of course no necessity arises to accumulate any large fund to meet this expenditure ; but when—as is very frequently the case—certain very expensive assets have to be renewed at very infrequent intervals (e.g. on the expiration of a long Lease) the wisdom of accumulating a sufficient sum of money to meet the cost of renewal is at once apparent. The means of providing this accumulation is often described as a Sinking Fund, but it may be questioned whether the description is really accurate, for the only thing really in common between this form of Sinking Fund and the more legitimate kind is that the amount of the instalment required is calculated by the same mathematical process.

The various methods of equalising the loss arising from Depreciation over a term of years have already been described in the earlier part of this work, and it has been pointed out (*vide* page 7) that each one of these methods may be employed

either with or without any provision being made to accumulate a fund to cover the eventual cost of renewal.* Such a fund (whether called a Sinking Fund, or by any other name) will place the assets of the undertaking in such a form as to enable it to pay away a large sum of money at some definite future date with a minimum of financial inconvenience ; but it is quite impossible to provide for a *loss* arising from Depreciation by accumulating assets in the form of investments, or any other form. If it be thought desirable, the account that would ordinarily be called " Reserve for Depreciation Account" might be styled " Sinking Fund," and so stated upon the liabilities' side of the Balance Sheet, but certainly nothing is to be gained by this misapplication of terms. On the other hand, the expression " Depreciation Fund," or " Depreciation and Renewal Fund," is quite applicable to a provision for loss under these headings, when at the same time a tangible fund is being accumulated to cover the expense that will arise when these losses have to be made good.

Where it is desired so to accumulate a sum of money, and the amount of the necessary annual instalments is not sufficiently large to make it convenient, or desirable, for specific investments to be acquired to represent each such instalment, the method is often adopted of taking out a POLICY OF INSURANCE, under which, in consideration of a fixed annual premium, the payment of a definite sum is assured at a named future date. Naturally, the rate of interest allowed by insurance companies (generally from $2\frac{1}{4}$ per cent. to $2\frac{1}{2}$ per cent.) is less than might be obtained from Government securities ; but, on the other hand, there is no absolute security against a fall in the market price of Government securities in the future, and for many purposes therefore the absolute certainty of a policy of insurance possesses advantages that more than compensate for the slightly increased annual expense.

* In practice, however, the Sinking Fund is only employed in connection with the " Straight Line " method.

In some cases, where loss by Depreciation is so covered by insurance, the plan obtains of debiting the annual premium paid to Revenue as Depreciation, and of retaining the wasting asset in the books at its cost (which is also the amount of the policy). The system is convenient and concise, but it is defective, as tending to obscure the true nature of the transactions involved. Provision for Depreciation of the asset should be made upon the customary lines, under one of the methods already described, and the insurance should be treated as an investment of assets in the nature of a Sinking Fund. The premiums will then be debited to an Investment Account, and interest (at 2 per cent., $2\frac{1}{4}$ per cent., or $2\frac{1}{2}$ per cent., according to circumstances) may safely be debited to this account and credited to Revenue. Of course, in the event of the policy being discontinued, a loss would be experienced, because the "surrender value" allowed by the insurance company will probably be less than the balance of the Investment Account so raised; but such loss might fairly be regarded as being incurred (if incurred) when the policy was surrendered, and not before.

DEPRECIATION, RESERVES, AND RESERVE FUNDS. 63

ACCOUNT SHOWING THE AMOUNT TO BE INVESTED EACH YEAR AT 2½% COMPOUND INTEREST FOR 12 YEARS SO AS TO PROVIDE A FUND OF £900 IN 12 YEARS.

Dr.	INVESTMENT ACCOUNT.	Cr.
1926 Dec. 31	To Cash	£ <u>65</u> <u>4</u> <u>9</u>
		<u>£65</u> <u>4</u> <u>9</u>
1927 Jan. 1	To Balance brought down	65 4 9
Dec. 31	" Interest	1 12 7
"	" Cash	65 4 9
		<u>£132</u> <u>2</u> <u>1</u>
1928 Jan. 1	To Balance brought down	132 2 1
Dec. 31	" Interest	3 6 1
"	" Cash	65 4 9
		<u>£200</u> <u>12</u> <u>11</u>
1929 Jan. 1	To Balance brought down	200 12 11
Dec. 31	" Interest	5 0 4
"	" Cash	65 4 9
		<u>£270</u> <u>18</u> <u>0</u>
1930 Jan. 1	To Balance brought down	270 18 0
Dec. 31	" Interest	6 15 5
"	" Cash	65 4 9
		<u>£342</u> <u>18</u> <u>2</u>
1931 Jan. 1	To Balance brought down	342 18 2
Dec. 31	" Interest	8 11 5
"	" Cash	65 4 9
		<u>£416</u> <u>14</u> <u>4</u>
1932 Jan. 1	To Balance brought down	416 14 4
Dec. 31	" Interest	10 8 4
"	" Cash	65 4 9
		<u>£492</u> <u>7</u> <u>5</u>
1933 Jan. 1	To Balance brought down	492 7 5
Dec. 31	" Interest	12 6 2
"	" Cash	65 4 9
		<u>£569</u> <u>18</u> <u>4</u>
1934 Jan. 1	To Balance brought down	569 18 4
Dec. 31	" Interest	14 5 0
"	" Cash	65 4 9
		<u>£649</u> <u>8</u> <u>1</u>

Dr.	INVESTMENT ACCOUNT (continued).	Cr.
1935 Jan. 1	To Balance brought down	£ s d
Dec. 31	649 8 1	730 17 6
" Interest	16 4 8	
" Cash	65 4 9	
	<u>£730 17 6</u>	<u>£730 17 6</u>
1936 Jan. 1	To Balance brought down	£ s d
Dec. 31	730 17 6	814 7 8
" Interest	18 5 5	
" Cash	65 4 9	
	<u>£814 7 8</u>	<u>£814 7 8</u>
1937 Jan. 1	To Balance brought down	£ s d
Dec. 31	814 7 8	900 0 0
" Interest	20 7 7	
" Cash	65 4 9	
	<u>£900 0 0</u>	<u>£900 0 0</u>
1938 Jan. 1	To Balance brought down	900 0 0

ACCOUNT SHOWING THE AMOUNT TO BE INVESTED EACH YEAR AT 3% COMPOUND INTEREST, SO THAT IN 12 YEARS THERE MAY BE A FUND OF £900.

Dr.	INVESTMENT ACCOUNT.	Cr.
1926 Dec. 31	To Cash	£ s d
	63 8 4	63 8 4
	<u>£63 8 4</u>	<u>£63 8 4</u>
1927 Jan. 1	To Balance brought down	63 8 4
Dec. 31	" Cash	63 8 4
" Interest	1 18 1	
	<u>£128 14 9</u>	<u>£128 14 9</u>
1928 Jan. 1	To Balance brought down	128 14 9
Dec. 31	" Cash	63 8 4
" Interest	3 17 3	
	<u>£196 0 4</u>	<u>£196 0 4</u>
1929 Jan. 1	To Balance brought down	196 0 4
Dec. 31	" Cash	63 8 4
" Interest	5 17 7	
	<u>£265 6 3</u>	<u>£265 6 3</u>

<i>Dr.</i>	INVESTMENT ACCOUNT (<i>continued</i>).	<i>Cr.</i>
1930 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	265 6 3
"	" Interest	63 8 4
"		7 19 2
		<i>£336 13 9</i>
1931 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	336 13 9
"	" Interest	63 8 4
"		10 2 2
		<i>£410 4 3</i>
1932 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	410 4 3
"	" Interest	63 8 4
"		12 6 1
		<i>£485 18 8</i>
1933 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	485 18 8
"	" Interest	63 8 4
"		14 11 7
		<i>£563 18 7</i>
1934 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	563 18 7
"	" Interest	63 8 4
"		16 18 4
		<i>£644 5 3</i>
1935 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	644 5 3
"	" Interest	63 8 4
"		19 6 6
		<i>£727 0 1</i>
1936 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	727 0 1
"	" Interest	63 8 4
"		21 16 2
		<i>£812 4 7</i>
1937 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
Dec. 31	" Cash	812 4 7
"	" Interest	63 8 4
"		24 7 1
		<i>£900 0 0</i>
1938 Jan. 1	To Balance brought down	<i>£</i> <i>s</i> <i>d</i>
		900 0 0

At the present time it would seem not unreasonable to assume that sound investments should produce 4% (free of income-tax). To produce the above result, the annual instalment would then be £59 17s. 11d.

CHAPTER XI.

THE DOUBLE-ACCOUNT SYSTEM.

IT is only proposed to consider the Double-Account System in the present volume to the extent that it affects the provision for Depreciation, &c., in connection with undertakings whose accounts are framed upon those lines.

The older forms of Double-Account System, exemplified by the statutory forms of accounts in respect of Railways (1868) and Gas Works (1871) made no provision whatever for any deduction ever being made from the original Capital Expenditure, the idea being that such provision is unnecessary if all expenses in connection with maintenance be fully met out of Revenue. Over an indefinite term of years it is probable that the actual expenditure in respect of Maintenance would approximately equal the actual deterioration in fixed assets that had taken place ; but over any limited number of years (and especially during the earlier years of the life of an undertaking) this is not the case, for deterioration must at least have reached a certain stage before any expenditure, even in the nature of small repairs, can usefully be incurred. In practice, therefore, the mere charging of Maintenance against Revenue will *not* suffice to keep up the value of fixed assets, unless the sum charged be not the actual expenditure but an estimated average sum which (during the first few years at least) is in excess of the sum that might usefully be expended at that time. Again, if the only charge against Revenue be in respect of expenditure on Maintenance, nothing can be charged to cover loss by obsolescence until the asset

in question has actually become obsolete. Here again, however, by the formation of a Reserve Account it is a simple matter to charge Revenue with as large a sum as may be deemed expedient, so that the actual profits shown by the accounts of an undertaking *need not* be in any way affected by the employment of either the Single or the Double-Account System. The essential distinction in the accounts is one of form only. Under the Single-Account System the provision in respect of Depreciation, &c., may either be deducted from the various assets, or it may be shown as a Reserve upon the liabilities' side of the Balance Sheet. Under the Double-Account System, the former alternative is impracticable, and the provision in respect of Depreciation must be shown as a Reserve. Even this difference between the two systems is, however, no longer universally observed in practice, for some undertakings have compiled accounts in the Double-Account form showing provision for Depreciation as a deduction from the amount of Capital Expenditure, and this plan appears to be coming into increasing favour in connection with various forms of electrical undertakings.

Undertakings that keep their accounts upon the Double-Account System do not as a rule erect any Works upon Leasehold Lands, for, being for the most part parliamentary companies, with powers for the compulsory acquisition of property, they naturally elect to take advantage of these powers to buy the Freehold. If, however, Works have been erected upon Leasehold Lands, then provision for Depreciation is clearly essential in respect of the expenditure so incurred. This is provided for in the authorised forms of accounts for Gas Companies by the creation of a Depreciation Fund by the charging annually of fixed instalments to the debit of Revenue, it being further provided that all sums so credited to "Depreciation Fund Account" must be represented by specific investments outside the business. This provision for Depreciation is, of course, exactly upon the

same lines as those described in the last chapter, in connection with Sinking Funds; but, for the reasons there explained, the term "Depreciation Fund" is to be preferred to the term "Sinking Fund."

In conclusion, it may be pointed out that, in theory at least, the Double-Account System aims at charging Revenue, not with the original cost of the wasting assets during the term of their life, but with the cost of acquiring equally efficient assets at the expiration of that time. The Single-Account System, on the other hand, aims at treating the cost of each asset as a working expense—and therefore as a charge against Revenue—during the period that the asset is employed for the purposes of the business.

CHAPTER XII.

LOCAL AUTHORITIES AND DEPRECIATION.

THE principles underlying the correct treatment of Depreciation will have been but ill-explained, if the reader of the preceding chapters has not firmly grasped the fact that the question of what (if any) provision is necessary to cover the Depreciation of assets is a matter dependent upon the nature of the assets themselves and of the conditions under which they are worked, and in no sense whatever upon the nature, or constitution, of the community of persons constituting for the time being the legal owners of those assets. Accordingly, if a Local Authority engages in a commercial business—as, for example, the manufacture and distribution of gas, or electricity—and if it wishes to produce accounts showing the profits earned by such business, those accounts must be prepared on the same lines as would be necessary, had the undertaking been owned by a company, if it be desired that they shall correctly show the actual results of the operations undertaken. Unless the accounts of the trading department of a Local Authority be so framed, it is altogether useless to attempt to compare the results with those achieved by a company conducting a similar business ; nor will the accounts be reliable, as an index of the actual results of its working.

It is hardly probable that anyone would have thought of disputing these somewhat obvious statements, were it not for the somewhat peculiar conditions under which Local Authorities are constituted, and the regulations which are consequently imposed upon them by the Ministry of Health

(formerly the Local Government Board), which exercises a general supervision over all Local Authorities. It is not denied that these circumstances have a distinct bearing upon the problem; but it cannot too strongly be insisted that the effect of their bearing has been greatly exaggerated in the past—sometimes through ignorance, and sometimes deliberately.

In the case of an undertaking owned by a public company, the necessary capital is provided by shareholders, and permanently remains with the company. Not only is the company under no obligation to return such capital during its existence, it is actually prohibited by law from doing so, save under special circumstances, and with somewhat elaborate safeguards which need not here be considered. The success of such a company is gauged, not by its ability to return its capital to its shareholders, but to its ability to earn profits from year to year, out of which it may pay dividends to its shareholders, which they, in their turn, regard as an adequate income on the investment of their capital having regard to all the circumstances. The success of a company depends, therefore, on its continued ability to pay satisfactory dividends; and this ability, in its turn, depends very largely on the systematic provision from year to year of an adequate sum to cover the Depreciation of wasting assets, and thus to provide for their renewal as and when necessary out of Revenue. Obviously, if no such provision has been made out of Revenue, the assets cannot be renewed, as and when the necessity arises, except out of Capital. Were they so to be renewed out of Capital, the amount of such Capital would have to be increased accordingly, and thus the amount of Capital on which dividends ought to be paid would be increased without any corresponding increase in the earning capacity of the undertaking—a process which, if persisted in sufficiently long, would necessarily reduce such dividends to infinitesimal proportions, even supposing profits were maintained at their original figure.

In the case of Local Authorities embarking upon trading undertakings no special form of accounts has been prescribed, and it is therefore open to discussion whether the same need exists for the provision for Depreciation of wasting assets. Any such discussion must, however, necessarily be confined to the legality of the transactions embarked upon, for the effect of any given financial policy can under no circumstances be dependent on the constitution, or legal powers, of those who embark upon it. That which is financially unsound must necessarily remain unsound, even if legalised.

Local Authorities do not raise Capital by an issue of shares to shareholders, but by the issue of a Loan to such of the investing public as are willing to lend upon the terms offered. Such a Loan is ordinarily issued on the ultimate security of the ability of the Local Authority to meet its engagements by levying rates. Its Loans are accordingly issued carrying a fixed rate of interest per annum ; any profits earned by the Local Authority over and above the sum required to pay such interest accordingly remain the property of the Authority, and may be employed in the relief of rates, or (alternatively) in the reduction of trading charges in the future. When the profits of a trading department are insufficient to meet the current interest, the Local Authority must make up the deficit by increasing the rates. It is clear that, if no provision were to be made for the Depreciation of wasting assets, as time went on it would be necessary for a Local Authority to issue further Loans to pay for the cost of renewals ; and that, if this policy were to be persisted in, gradually increasing demands would have to be made upon the rates to cover interest charges.

The conditions under which Local Authorities are allowed to embark on trading undertakings are determined by Statute. The statutory provisions are by no means uniform, but normally they provide that the gross earnings of the department shall be applied (1) in payment of current working expenses, including the maintenance of assets ; (2) in the provision of a

Sinking Fund for the ultimate repayment of Loans ; (3) that any surplus *may* be employed in building up a Reserve Fund to an amount not exceeding 10 per cent. of the Capital Expenditure to date ; and (4) that the surplus (if any) may be applied in the relief of rates. Apparently there is no provision that rates may be called upon to contribute towards the Reserve Fund, but they may be called upon (if necessary) to contribute towards the Sinking Fund. Hence it is argued that they may be called upon (if necessary) to provide for the maintenance of wasting assets ; but it seems doubtful whether a call can be made on rates for this last-named purpose until the necessity actually arises to spend money on renewals.

It would seem, therefore, to have been the intention of Parliament (guided by the Local Government Board) that the Sinking Fund instalments should to some extent take the place of the necessary provision for Depreciation ; and this view is strengthened by the fact that the Local Government Board would ordinarily authorise an issue of Loans to cover the cost of the *renewal* of wasting assets in all cases where the original Loan (out of the proceeds of which the discarded assets were purchased) has been redeemed, or provided for by way of Sinking Funds. The idea thus seems to be to restrict the use of the term " maintenance " as a Revenue charge to ordinary " Repairs " and " Small Renewals," and to require that repayment of each Loan should be provided for out of Revenue by means of Sinking Funds before a new Loan is allowed to be raised for the same purpose.

This arrangement has given rise to a good deal of confusion in the past ; but it will be seen that, if in point of fact the provision for redemption of debt from time to time exactly equals the true Depreciation charge, such an arrangement would produce correct results, for the statutory Sinking Fund provision charged against Revenue might in those circumstances fairly be said to take the place of the necessary provision for Depreciation, thereby making any further provision

for Depreciation, as such, unnecessary, in order to arrive at true profits, or in order to insure that the finances of the undertaking were conducted upon a sound basis.

Unfortunately, however, the statutory Sinking Fund hardly ever corresponds with the true Depreciation charge, and that for two reasons : (1) The correct Sinking Fund charge depends on the prescribed date for the repayment of the original Loan, which was determined by the Local Government Board when sanctioning the original Loan, and was by no means necessarily identical with the working life of the assets acquired with the proceeds of that Loan. It is true that Loan terms have in the past been arrived at after taking into consideration the general nature of the assets to be acquired ; but expectation and performance are by no means always identical. Where the loan period is longer than the working life of the asset, the statutory Sinking Fund is less than the true provision for Depreciation ; and, conversely, when the loan period is shorter than the working life of the asset the statutory Sinking Fund is more than sufficient to cover the true Depreciation charge. So far as the author's researches have enabled him to form an opinion it would appear that, taken *en bloc*, the Local Government Board adopted a conservative policy ; and that, therefore, the statutory Sinking Fund instalments usually amount *en bloc* to more than the necessary provision for Depreciation, with the result that the true profits are understated in the accounts. This is satisfactory so far as it goes, as being upon the safe side, and as constituting *pro tanto* a Secret Reserve ; but such a position of affairs is largely accidental, and it must not be assumed that it exists in connection with every Local Authority. In any event it is an unsatisfactory means of dealing with the Depreciation problem, as a Local Authority is not allowed to deduct Sinking Fund provision from its profits for income-tax purposes ; whereas it is granted a reasonable allowance for Depreciation (under the heading of " Wear and Tear ") if it be claimed at the right time.

Most Local Authorities are now aware of this ; but in the past all, or almost all, have paid unnecessarily large sums by way of income-tax on their so-called " trading profits."

(2) A more serious difficulty in the treatment of renewals by Local Authorities has, however, arisen out of the past practice of the Local Government Board, of sanctioning a Loan to be applied in the acquisition of numerous assets having widely different terms of working life, the loan term being for an " equated " period calculated as being the average working life of all the assets. Such an arrangement may work out all right in total, although obviously it is calculated to encourage rough-and-ready methods ; but, as applied to individual items, it has caused much inconvenience and disappointment in practice. For example : a Loan may have been sanctioned for a term of forty years ; with the proceeds of that Loan certain assets may have been acquired having a working life of 12 years, others with a working life of, say, 20 years, and so on. At the end of the first 12 years the least permanent assets will thus require to be renewed ; but the Sinking Fund (calculated on a 40 years' term) will not have provided for the repayment of the whole of that part of the original Loan. Thus, supposing the cost of the assets calling for replacement be £1,000, the statutory Sinking Fund on that portion of the Loan at 3 per cent. would be £13.26 per annum : to provide for the renewal of these particular assets at the end of 12 years, it should have been £70.46 per annum. The Local Authority will only be allowed to issue a new Loan for renewal purposes to the extent that it has provided for the repayment of the original Loan ; accordingly it will only be able to borrow about one-fifth of the cost of the renewals then necessary. The remaining four-fifths must be provided in other ways ; and, thus, unless some special provision has been made for equalising the cost of renewals from year to year, very heavy charges will become necessary against the Revenue of certain years, when certain blocks of assets call for renewal. It is possible that a Reserve

Fund of 10 per cent. of the total Capital Expenditure would at all times be sufficient to enable renewal charges to be equalised from year to year, but it would be very unwise to assume its entire sufficiency for that purpose without careful calculation. Accordingly, it is submitted that each Local Authority should calculate the amount it will have to spend on renewals from year to year in the future, based on the expectation of life of the various blocks of assets ; and consider how much of the cost of such renewals will have to be met by some method other than by reborrowing—i.e. out of an existing Reserve for Renewals (by whatever name it may be described), or out of current profits. It need perhaps hardly be mentioned, however, that current profits cannot be relied upon for renewals, save to a quite limited extent, as the profits of one year will often be quite inadequate to meet the cost of such renewals as may be necessary in that year.

It is understood that this practice, of sanctioning Loans over a period dependent upon the average life of a number of dissimilar assets, has now been abandoned ; accordingly, the difficulties described above will not hereafter arise. It is, however, important to bear in mind that they will continue to recur in connection with all existing Loans, until all renewals have been effected that fall due during the currency of such Loans. It will take nearly another generation before these difficulties are finally overcome. When they have been—assuming the present policy as to loan sanctions be continued—it may, it is thought, fairly be said that the statutory Sinking Fund will exceed the true provision for Depreciation in each case ; and that, as all future renewals can be provided for by way of reborrowing, no necessity will then arise to provide anything in addition for Depreciation. Even then, however, it will be convenient to calculate the true Depreciation charge from year to year, so that application may be made for such allowances as may properly be claimed from profits assessable to income-tax.

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